

Y4
.J89/2
V 88/2
PT. 2

1042

941/4
589/2
In 2/30
976

VOLUNTARY INDUSTRIAL STANDARDS—1976

GOVERNMENT

DOCUMENTS

Storage

JUN 29 1976

THE LIBRARY
KANSAS UNIVERSITY



011600 672967

HEARINGS

BEFORE THE

SUBCOMMITTEE ON

ANTITRUST AND MONOPOLY

OF THE

COMMITTEE ON THE JUDICIARY

UNITED STATES SENATE

NINETY-FOURTH CONGRESS

SECOND SESSION

MARCH 22 AND 23, 1976

Printed for the use of the Committee on the Judiciary

(Pursuant to S. Res. 375, Sec. 4)



U.S. GOVERNMENT PRINTING OFFICE

71-049 O

WASHINGTON : 1976

1/28/57
10/25/57
200

DOCUMENTS
JUN 29 1957
THE LIBRARY
KANSAS STATE UNIVERSITY

COMMITTEE ON THE JUDICIARY

JAMES O. EASTLAND, Mississippi, *Chairman*

- | | |
|----------------------------------|-------------------------------------|
| JOHN L. McCLELLAN, Arkansas | ROMAN L. HRUSKA, Nebraska |
| PHILIP A. HART, Michigan | HIRAM L. FONG, Hawaii |
| EDWARD M. KENNEDY, Massachusetts | HUGH SCOTT, Pennsylvania |
| BIRCH BAYH, Indiana | STROM THURMOND, South Carolina |
| QUENTIN N. BURDICK, North Dakota | CHARLES McC. MATHIAS, Jr., Maryland |
| ROBERT C. BYRD, West Virginia | WILLIAM L. SCOTT, Virginia |
| JOHN V. TUNNEY, California | |
| JAMES ABOUREZK, South Dakota | |

FRANCIS ROSENBERGER, *Chief Counsel and Staff Director*

SUBCOMMITTEE ON ANTITRUST AND MONOPOLY

PHILIP A. HART, Michigan, *Chairman*

- | | |
|----------------------------------|-------------------------------------|
| JOHN L. McCLELLAN, Arkansas | ROMAN L. HRUSKA, Nebraska |
| EDWARD M. KENNEDY, Massachusetts | HIRAM L. FONG, Hawaii |
| JOHN V. TUNNEY, California | STROM THURMOND, South Carolina |
| BIRCH BAYH, Indiana | CHARLES McC. MATHIAS, Jr., Maryland |
| JAMES ABOUREZK, South Dakota | |

HOWARD E. O'LEARY, *Chief Counsel and Staff Director*

CONTENTS

DATES OF HEARINGS

	Page
March 22, 1976-----	513
March 23, 1976-----	613

ORAL AND PREPARED STATEMENTS OF COMMITTEE MEMBERS

Abourezk, James, a U.S. Senator from the State of South Dakota, member of the Subcommittee on Antitrust and Monopoly, opening statement--	513
---	-----

ORAL TESTIMONY AND PREPARED STATEMENTS OF WITNESSES

Hart, F. Donald, president, American Gas Association, member of panel from AGA, <i>see also</i> , Frank E. Hodgdon-----	572
Hodgdon, Frank E., vice president American Gas Association, member of panel from AGA, <i>see also</i> , Donald F. Hart-----	581
Prepared statement-----	591
John, Manfred, testing engineer, Engler-Bunte Institut, Karlsruhe, Federal Republic of Germany; accompanied by Werner Diermayer, interpreter-----	613
Prepared statement-----	616
Johnson, Walter H., vice president, Technological Services, National LP-Gas Association-----	579
Prepared statement-----	605
Kutzner, Luitpold, Kutzner-Weber GMBH & Co., Munchen, West Germany; accompanied by Werner Diermayer, interpreter-----	623
Attachments to prepared statement-----	627
Panel from American Gas Association, composed of Donald Hart, Frank E. Hodgdon, and F. Boseley Crowther-----	572
Panel from Memphis, Tenn., composed of Frank J. Thorn, George Watts, and Neumon Taylor-----	555
Taylor, Neumon, general manager, Memphis Light, Gas & Water Division, member of panel from Memphis, Tenn., <i>see also</i> , Frank J. Thorn and George G. Watts-----	562
Attachments to prepared statement-----	565
Thorn, Frank J., retired chief gas inspector, Public Service Department, member of panel from Memphis, Tenn., <i>see also</i> , George G. Watts and Neumon Taylor-----	555
Wank, H., director, Canadian Gas Association, Toronto, Canada, and vice president and general manager of the Canadian Gas Research Institute; accompanied by J. E. Heeley, manager of certification laboratory, Canadian Gas Association-----	548
Watts, George G., Bellmark Corp., member of panel from Memphis, Tenn., <i>see also</i> , Frank J. Thorn and Neumon Taylor-----	556
Attachments to prepared statement-----	559
Woolfolk, Charles E., president, Save-Fuel Corp., Memphis, Tenn-----	515
Prepared statement-----	521

IV

MATERIAL REQUESTED AT THE HEARINGS

Summary of letter ballots for adoption of proposed standard for automatic vent damper devices for use with gas-fired appliances.....	Page 633
Letter to Walter H. Johnson from J. A. Spence, manager, Approvals and Codes.....	638
Jack Anderson article as it appeared in the Washington Post for Friday, October 20, 1972; also A. G.A. statement of October 20, issued in response..	639

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

Letter from Edward M. Grandinetti, president, Grandinetti Products, Inc., to John Ray, assistant counsel, Subcommittee on Antitrust and Monopoly, with enclosures.....	640
Letter to Patricia A. Kelsey from Edward W. Kiefer (enclosures not included).....	641
Views and Truths at the Marketplace.....	647
Letter from Walter C. Rein to W. A. Farquhar, Underwriters Laboratories, Inc.....	647
An open letter to Underwriters Laboratories and merchandisers of hand held hair dryers.....	648
Open letter No. 2 to Underwriters Laboratories and merchandisers of personal care and cosmetic products.....	649
Letter from Edward W. Kiefer, Applied Research Laboratories of Florida, Inc., to Robert J. Schroeder, FTC, with enclosures.....	651
Affidavit of R. V. Myer, assistant director, American Gas Association....	668

ADDITIONAL STATEMENTS SUBMITTED FOR THE RECORD

American Gas Association supplemental statement in response to Woolfolk testimony.....	670
Sant, Roger W., Assistant Administrator for Energy Conservation and Environment, Federal Energy Administration.....	675
Woolfolk, Charles E., supplemental statement in response A.G.A. statement..	684

WRITTEN QUESTIONS SUBMITTED TO WITNESSES FOR RESPONSES

Questions submitted by Mr. Ray to:	
F. E. Hodgdon.....	686
W. H. Johnson.....	692
Frank Thorn.....	693
George G. Watts.....	694
Neumon Taylor.....	694
Questions submitted by Senator Thurmond to Charles E. Woolfolk.....	695

VOLUNTARY INDUSTRIAL STANDARDS

MONDAY, MARCH 22, 1976

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met at 10 a.m., in room 2228, Dirksen Senate Office Building, Hon. James Abourezk presiding.

Staff present: Howard E. O'Leary, chief counsel and staff director; John Ray, assistant counsel; Catherine M. McCarthy, chief clerk; Peter N. Chumbris, chief minority counsel; and Emory Sneed, assistant minority counsel.

Senator ABOUREZK. The committee will come to order.

OPENING STATEMENT OF JAMES ABOUREZK, A U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA, MEMBER OF THE SUB- COMMITTEE ON ANTITRUST AND MONOPOLY

Senator ABOUREZK. The Subcommittee on Antitrust and Monopoly today continues its inquiry into the question of how voluntary standards programs can thwart competition in the marketplace.

Voluntary standards generally are developed and adopted by industry groups. By themselves they have no force of law, but customarily, cities, States and the Federal Government adopt the standards as their own. Thus, a voluntary standard quickly turns into law as a city ordinance or a specification for Federal purchasing. These standards are, of course, often responsible for producing better and safer products. However, they seem to all too often, give the consumer less efficient and more costly products to choose from.

Senator Philip Hart, the chairman of this subcommittee, initiated this series last year, focusing on "producer goods" which are sold to manufacturers for use in one industrial process. In the business world, where such groups as the American Society of Mechanical Engineers, Underwriters Laboratory, and the American Gas Association are familiar powers, the stakes are high, but everyone knows the rules.

Today, we are going to look at the impact that standard-setting bodies can have on consumer goods which are purchased directly for use by individuals. In this case, the names are far less familiar, and the purchaser far less informed.

Few consumers realize the importance of these voluntary standards, though some are aware of the presence of official-looking seals on the devices they purchase. We are so used to accepting such seals as evidence of some beneficent power watching over our household budgets and our safety that we never stop to question just what is behind them.

Because voluntary standards so often have the force of law, and because they are so pervasive, they can have an enormous impact on the marketplace. Industry bodies set rules which cover everything from clothes, food, furniture, cars, heaters, boilers, lights, replacement parts, and so forth. Products must conform to industry standards or they simply won't reach the public. It is altogether possible that the standard may prevent some useful, innovative, economical device from coming on the market at all.

Because the consumer is so much in the dark about the relative merits of the thousands of products he needs in order to live comfortably and safely, he relies on Government to see that his furnace or coffee pot performs properly. Otherwise, he runs the risk of hurting himself, or spending half his life at small claims court or the Better Business Bureau, trying to get satisfaction for his purchase of some dangerous, shoddy, or defective product. The problem is that the local jurisdiction is just as uninformed as the consumer. Lacking expertise, cities and States have come to rely blindly on the industry standards, too. They write it into their local code without questioning who developed it, or how. They will choose the AGA-approved product over the uncertified one every time—even though the uncertified product could be better.

Thus, the seal of industry approval based on the "voluntary" standard takes the place of the consumer's own discriminating choice. The marketplace no longer functions according to the discipline of public acceptance and rejection, but according to the industry standard. The average American doesn't realize that his or her choice of products has been usurped by the standard-making group.

I do think that it is unlikely that any standards-making body could keep an excellent and useful item off the market forever. But the private groups that set the standards and certify the products are as capable as the Government of delay and redtape. They also may lack the disinterested position that the Government at its best does possess.

One of the issues we must consider here is due process. Is there any appeal when certification is denied? Is there any recourse in the event that the industry committee prevents certification simply by refusing to develop a standard?

Long delays in certification can prevent the appearance of new items on the market for so long that a small company or individual goes out of business waiting. The beneficiary of this, in the case of a good product, is very often the big conglomerate. Large companies devote substantial time to working with the standard-making groups, and can afford to wait long periods for new products to come online. Far more often than the public realizes, the standard itself is not developed to objective and neutral criteria of safety and soundness, but to the measure of specific products. This, too, bars the way for goods which may serve a need better, or more cheaply, but which do not conform to the old unique standard.

Last year's hearings provided examples of standards which were not revised to take account of technological advances. Today, we are going to look at a situation where no standards appropriate to the most probable use of a vent damper were developed.

Our first witness, I believe, is Mr. Woolfolk, the owner of the device in question.

Mr. Woolfolk, I would like to welcome you to the Antitrust Subcommittee. If you are ready to present your testimony, we are ready to hear it. Please be seated, if you like.

We have, I think, three panels this morning, and I would encourage all the witnesses to summarize their formal testimony. All of the prepared statements will be printed in the record as though read. That way we can give the committee and the staff more of an opportunity to ask questions.

STATEMENT OF CHARLES E. WOOLFOLK, PRESIDENT, SAVE-FUEL CORP., MEMPHIS, TENN.

Mr. WOOLFOLK. Thank you, sir, very much. And as you have said, Senator, my name is Charles E. Woolfolk, and I am president of Save-Fuel Corp. Before joining Save-Fuel, I spent 20 years in the business world, working for a large corporation. I retired in 1970 as advertising manager of Arigco Chemical Co.

I am happy to accept this subcommittee's invitation to testify on the effects on competition of so-called voluntary industrial standards and certification programs. Before turning to the specifics of the controversy between Save-Fuel and AGA, I would like to make a few preliminary comments.

And since time is of essence, I will try to cut my remarks as short as possible. I have tried to compile in my prepared statement about 8 years of work, and although much of it is important, I think that the questions would probably be more important. For me, standardization and certification has been an important subject for the last 8 years, because it has been the action and the inaction of the apparatus of two standards-setting committees and a certification laboratory that has prevented my company from marketing a product which I feel will benefit this country dearly.

Now, of course, standards-development organizations and certification laboratories will argue that a manufacturer does not have to manufacture its products in accordance with their specifications or seek their certification services. Their standards and certification services, they say, are not mandatory, and a manufacturer need take no notice of either in marketing its product. However, the realities are such that failure to comply with these so-called voluntary standards and have your product certified as meeting them can, all too often, mean that you are promptly out of business.

For example, Save-Fuel Corp., now inactive for all practical purposes, was set up to manufacture and market what is commonly referred to as an automatic damper; its purpose is simple. Each gas-fired furnace is equipped with a vent that allows the products of combustion which develop when the furnace is firing to escape into the atmosphere. The problem, however, is that when the furnace is

not firing, the vent pipe remains open, which allows the heated air to continue to dissipate.

The result is that most of this conditioned air is lost and the thermostat is forced to call for heat quicker than it would if the warm air was trapped in the system.

Save-Fuel's automatic damper was manufactured and designed to prevent heat loss up the vent during the period that the furnace is not firing.

The result would be a savings to the consumer on his monthly gas bill and conservation of our shrinking energy supply.

If an automatic damper was placed in all the homes and business concerns in this country that could use one, and the amount of gas saved converted into Btu's of oil, there would be a savings of well over one-half million barrels of oil per day—over half of what the President is now asking as a conservation effort.

However, in order to market the automatic damper successfully, we needed AGA's certification. One may well ask why did we need AGA's blessings to market our device. The answer is simply, over the years, most local authorities have written into their codes that only products certified by AGA as meeting the applicable ANSI standards will be accepted for installation in their respective jurisdictions. The result is that these organizations have tremendous power. In short, these organizations have the power to determine who will and who will not do business in this country.

There is another side of the coin of standardization and certification. While there are many excellent testing and inspection laboratories in this country, the local authorities, in the main, tie their acceptance to the so-called nationally recognized testing laboratories.

The result is that the AGA's and the UL's find themselves with a protected monopoly. They do not have to worry about competition, no matter how arbitrary or discriminatory their fees or services may be.

Now, what effect does voluntary standards and certification programs have upon competition? At the outset, it should be pointed out that we are talking about organizations that develop standards for and certify products whose sales generate billions of dollars each year.

One writer has put it this way. Voluntary products standards can and do have significant effect on the economy and on society. A collective industrywide decision, for example, concerning what product characteristics are important and what quality levels constitute above or below standards can have a tremendous impact on competition and competitors, industry structures, conduct, and performance.

However, the effect on competition can be a positive one; a well-conceived and fairly administered standardization and certification program can have a procompetitive effect. But if it falls into tainted hands, it can be a most convenient tool for crippling competition. I am a strong advocate of the free enterprise system. Consequently, I look with disfavor upon regulations that dictate the kind of products manufacturers produce. But, in our complex society, with its sophisticated mousetraps, we need both design and performance standards. It is the only way to insure that the public receives quality and safe products.

So I accept standards and certifications as a modern-day necessity. I would like to see the regulations end with the private standards developers and certifiers, but I am convinced that until the Federal Government takes steps to clean up the invisible corruption that exists in this activity, we will not have a free and open marketplace. I realize it is popular today to talk about deregulation. But let us face it, history has shown that if the free enterprise system is to remain free, some Government oversight is necessary,

In the area we consider here today, some Government oversight is necessary. Simply stated, like politics, football, or oil production, the players involved are human beings, and there is a great incentive to cheat. The Save-Fuel experience, which I now turn to, will present another solid chapter of evidence of why it is time that the Federal Government begin to fulfill its responsibility in this area. The automatic damper that we display here today is considerably different from our 1965 model. And if I may, I would like to display our unit. I wonder if there is an electric outlet anywhere that we can get to?

[The Vent-O-Matic unit was set up.]

Mr. WOOLFOLK. Sir, just briefly, if I could explain our damper as it is today; and I will try to cut this very briefly.

This, of course, is a steel cylinder here, bulged at the middle, so that it compensates for the obstruction of the damper within.

This is the thermostat; it is in all of your houses. This little light here signifies the gas valve. When the thermostat calls for heat, this damper opens, and then the gas valve fires, right here. Should this fail to open, if it does not open 100 percent, this gas valve goes off. Now, that is the safety interlock that is built into this so that it will be safe.

In other words, there is a cam attached to the rod for the damper. And if that does not go all the way across, then it does not open—rather, the valve does not go on.

And of course, when the room temperature is satisfied, this closes. When it closes, it retains the conditioned air within the house and consequently would require, then, for the furnace to go on less, and that is where you get your savings.

Senator ABOUREZK. Can I ask a question?

Mr. WOOLFOLK. Yes.

Senator ABOUREZK. That cylinder, the steel cylinder, that represents the chimney for the gas furnace?

Mr. WOOLFOLK. This is a unit. It is a self-contained unit, Senator; a self-contained unit that sits right on top of your furnace, where the vent pipe comes out. You cut off 6½ inches of the vent pipe, because all of these are the same height.

This is then inserted into the vent pipe and, of course, the screws are put in to make it steady.

Senator ABOUREZK. Just to straighten it out in my own mind, the loss of heat that you are trying to prevent—the heat loss goes through the furnace chimney when that particular device is not attached—the device prevents the heat loss from going out?

Mr. WOOLFOLK. This prevents the heat from going up the stack. ASHRA has given us a table—ASHRA is kind of the Bible of the heat flow industry, to a certain extent—and they say that a 6-inch

diameter vent in a house, 15 feet tall, with, say, a 15-mile-an-hour wind going across it, the difference between inside and outside temperatures—well, it would actually pull out of that house 11,700 cubic feet of air per hour.

Now, that comes from the hottest—the heat chamber—air in the house. So when that goes out, it sucks in cool air, and then the furnace has to go on to heat up that 11,700 cubic feet of air again. For that reason, our tests have shown that we do get substantial savings.

Senator ABOUREZK. One other question, before you finish.

Mr. WOOLFOLK. Yes, that is all right.

Senator ABOUREZK. The safety mechanism on there is proven beyond a doubt; that is, nobody doubted that it has total safety?

Mr. WOOLFOLK. Senator Abourezk, actually, the AGA put this on three types of furnaces. Actually, there are only three types of furnaces, and these three are tested by set standards. The standards are for counterflow and upflow and a horizontal furnace. No matter what the brand of the furnace is, actually the unit is going to be tested by the same standards. These were tested by AGA, and they were certified as integral parts of that furnace.

So, if it is tested on one furnace, then it should be approved on most any type of furnace; any brand, no matter what the brand name.

In addition to AGA, the Canadian Gas Association also tested our unit. They found that it was safe. It is true, they made recommendation to the Interprovincial Gas Council, there in Canada. And the Canadians approved it. In 6 months' time—evidently, they had an abundance of gas when we had it approved—they said they did not want anything unnecessary in the vent pipe, and they withdrew their approval, so we cannot market in Canada.

But we still have the confidence of the assurance of the Canadian Gas Association, which, I think, is an accredited testing laboratory. I would put it in the same category as the American Gas Association, UL, or other good private industry labs.

Senator ABOUREZK. Thank you.

Mr. WOOLFOLK. But I did want you to see the unit that we are talking about. Actually, we took a different unit to AGA, to begin with, and they did suggest that we redesign it. We redesigned the unit, including this, the way it sits right now, and then sent it through for the tests.

And soon, we also received certificates as an integral part of the furnace. Now, at the time we received the certificates—and I believe the certificates are submitted as exhibits in this folder of mine—well, I was not as closely associated with the business, because I held down a full-time job. The only thing my brother and I did was put up the money.

We took the certificates on their face value, which said the Save-Fuel Corp., the Vent-O-Matic, approved accessory certificate, if I am not mistaken, and I think really, that is when AGA started marching their armies against the Save-Fuel Corp., because we published that, released the fact it was certified by AGA. And the reason we did that—well, of course, we were not versed in the gas industry, and I have found that, actually, it has a language all its own; you have got

to learn another language, just like if you go to France or Germany or wherever, in order to understand it.

However, this was then taken to AGA, and the certificates, we thought, gave us authority. But once we released this to the news media, then the utility companies, I think, started calling Chief Meyers, who was then in charge of the lab.

Chief Meyers, I think, to begin with, felt that this was good for the Nation and for the country, and so consequently, he wanted to approve it. But the pressures from within and from without, actually got him into quite a bit of trouble—at least, I am told that; that is hearsay.

Anyway, as soon as we found that we needed standards before we could be certified as an accessory, we then approached AGA to let us present this to the Z-21 Committee. That was the standard-making committee.

Our presentation was first made in 1969, in fact, when Charles Diehl took it up. Nothing was done. They said, "Well, we would like to"—well, they would consider it. But nothing was done for that year.

Then, about a year later, I went back to AGA—or, rather, to the Z-21 Committee—and presented my product again, requested that standards be formed. They appointed a secretary of the task force. The secretary did not even serve, so we wasted another year.

At the next meeting they did name Walter Johnson as chairman. And Walter Johnson, then, with his task force committee, worked for about a year compiling standards that were acceptable, at least to the task force committee.

And in order to expedite matters after these standards had been written, they were mailed to 41 members of the Z-21 Committee, and a vote was returned, 33 for, 7 against, and 1 abstaining.

Since only a majority was needed, we thought once again our fuel-saving device had succeeded. But we were wrong. The committee gathered the seven votes against, along with their reasons, and suggested that all members review these objections with the thought of changing their vote. Seventeen votes were changed, and by the time of their annual meeting, a suggestion was made by the executive committee that the damper be approved only for use on new furnaces. This suggestion was made prior to our demonstration of a prototype unit, incorporating all the revisions in the new standards and proving it was impossible to install the device improperly. The executive committee's suggestion was approved, and we, not being in the furnace-manufacturing business, were promptly out of business.

Sure, it was a great loss to me and my company, but it was also a great loss to the American people.

There is another important point to be considered regarding the executive committee's position that a standard be developed allowing certification of automatic dampers only as original equipment. Why did they need such a standard? We already had our device certified for installation as original equipment, and could get it for all brand names if we were willing to cough up enough money.

Incidentally, one thing I did not tell you is when I went in and had a chat with Chief Meyers, he said, "Well, why don't you bring

it in and put it on any furnace? I'm pretty sure that we can approve it." And I told him, at the time, I said:

Well, now, Chief Meyers, I know there are about 800 furnace manufacturers in the country today and each one of them making many models. And I have in my pocket a letter from one of the leading furnace manufacturing companies. They tell me that it costs between \$1,000 and \$2,000 to put a furnace through your lab.

So, you multiply that out, and you come to way in excess of \$1 million, and I just do not have that kind of money. So, that is a position that small companies do get into when they start dealing with big giants. And we felt, of course, that this position—for original equipment only—just put us completely out of business.

But back to that, they had tested these on the three devices, and they OK'd it. They gave us a certificate as an integral part. We had already had our device certified for installation as original equipment and can get it for all brand names, if we were willing to cough up enough money.

The only thing that I can surmise from this action is that AGA is saying that when they certified our device as original equipment, they certified an unsafe device. It should be noted that, as the new standards are presently written—and I assume that they are written; I do not know—our device does not meet them.

However, I am sure that all the large furnace manufacturers are working on their own automatic dampers in accordance with their AGA-developed standards.

Senator, this is getting kind of long, and I am going to kind of skip over, if it's all right with you.

Senator ABOUREZK. If you want to just cover the high points and then we'll get into the questioning.

Mr. WOOLFOLK. All right, sir.

Well, of course, one of the high points that we had was an article by Jack Anderson that was written back in 1972; and just to show you how these big boys do work, well, we were right on the verge of getting permission to sell our product in the city of Seattle, Wash., when Jack Anderson's article came out, well, actually we did not get permission, and we have had a pretty rough time of it getting permission anywhere.

Of course, Jack Anderson's article was then backed up by an article in the Press-Scimitar by Orville Hancock in Memphis in which he quoted Mr. Neumon Taylor, who is head of the Memphis Light, Gas & Water Division, and it was stated: "Memphis Light, Gas & Water is all for the damper. We know it is fully treated and it is fully tested and ready for use and that it is completely safe." I have a copy of that article attached.¹

And it also points out how George Watts with Memphis Light, Gas & Water found a savings of 8-12 percent with attic furnaces and savings of 20 to 37 percent with other furnaces.

There was one other instance, too, that I think bears commenting on. You saw, "Well, you received approval there in the city of Memphis. Why didn't you go ahead and sell them there?"

¹ See exhibit 8, p. 538.

I had established some dealers in the city of Memphis in order to sell the products and suddenly they said, "Well, we just can't sell them."

I said "Why?"

They said, "Well, we are just not getting the cooperation we should, and we're getting some mighty bad feedback."

I said "Why?"

Finally they told me that their customers had called Memphis Light, Gas, & Water. Now, I don't know who this was in Memphis Light, Gas, & Water, but I decided that I was going to get my wife to call and find out just what they said. So she called and said, "I would like to put a Vento-O-Matic on my furnace."

They said, "Well, I'm sorry, but we just don't approve that."

She said, "Well, it was out in the newspaper that you approved it."

They said, "Yes, but we've since changed our mind; the only way in the world that we'll let you put it on is if you sign an affidavit stating that you will hold us harmless in case of any damage."

Well, I called Mr. Grady, who was then manager of the Memphis Light, Gas and Water and told him just what had happened. He said, "Well, that shouldn't be and I'll straighten it out." But still the damage was done. And, you know, you get one or two calls like that and the word goes around and you just don't get any sales.

I would like to emphasize this in closing, and that is, what is badly needed in this area of commercial activity is competition. As I noted earlier, AGA and UL have a protected monopoly.

I am reminded of the story I once heard down South regarding a farmer and his dog. As the story goes, the old farmer's dog became finicky and no matter what kind of food—choice foods—the old farmer put before the creature, he would simply turn up his nose and walk away. So the old farmer went out and brought home a second dog, and from that point on the old dog lost his discriminating taste, and that's what a little competition does.

Well, Mr. Chairman, I am prepared to answer any questions that the subcommittee may have. I would like, however, to request at this time that the record be held open in order that I may supply additional information in this matter.

Thank you.

[The prepared statement of Mr. Woolfolk follows. Testimony resumes on p. 542.]

PREPARED STATEMENT OF CHARLES E. WOOLFOLK, PRESIDENT, SAVE-FUEL CORP.,
MEMPHIS, TENN.

Mr. Chairman, my name is Charles E. Woolfolk, president of Save-Fuel Corporation. Before joining Save-Fuel, I spent 20 years in the business world working for a large corporation. I retired in 1970 as Advertising Manager of Arigo Chemical Corporation.

I am happy to accept the Subcommittee's invitation testify on the effects on competition of so-called voluntary industrial standards and certification programs. Before turning to the specifics of the controversy between Save-Fuel and AGA, I would like to make a few preliminary comments.

For me, standardization and certification has been an important subject for the last eight years, because it has been the actions and inactions of the apparatus of two standards-setting committees and a certification laboratory that has prevented my company from marketing a product which I feel will benefit this Country dearly.

Now, of course, standards-development organizations and certification laboratories will argue that a manufacturer does not have to manufacture its products in accordance with their specifications or seek their certification services; their standards and certification services, they say, are not mandatory and a manufacturer need take no notice of either in marketing its product. However, the realities are such that failure to comply with these so-called voluntary standards and have your product certified as meeting them can all too often mean that you are promptly out of business.

For example, Save-Fuel Corporation, now inactive for all practical purposes, was set up to manufacture and market what is commonly referred to as an automatic damper; its purpose is simple. Each gas-fired furnace is equipped with a vent that allows toxic fumes, which develop when the furnace is firing, to escape into the atmosphere. The problem, however, is that when the furnace is not firing the vent pipe remains open, which allows the heated air to continue to dissipate. The result is that most of this conditioned air is lost and the thermostat is forced to call for heat quicker than it would if the warm air was trapped in the system.

Save-Fuel's automatic damper was manufactured and designed to prevent heat loss up the vent during the period that the furnace is not firing. The result would be a savings to the consumer on his monthly gas bill and conservation of our shrinking energy supply. If an automatic damper was placed in all the homes and business concerns in this Country that could use one, and the amount of gas saved converted into the BTU's of oil, there would be a saving of well over one-half million barrels of oil per day—over half of what the President is now asking as a conservation effort.

However, in order to market the automatic damper successfully, we needed AGA's certification. One may well ask why did we need AGA's blessings to market our device. The answer is simply, over the years most local code authorities have written into their codes that only products certified by AGA, as meeting the applicable ANSI standards, will be accepted for installation in their respective jurisdictions. The inability of local governments to provide the necessary facilities and personnel to write their own standards and do their own testing has forced them into blind adherence of the guidance of such standards-development organizations as ANSI, ASME and ASTM and such certification organizations as AGA and UL. The result is that these organizations have tremendous power. In short, these organizations have the power to determine who will and will not do business in this Country.

There is another side to the coin of standardization and certification. While there are many excellent testing and inspection laboratories in this country. The local authorities, in the main, tie their acceptance to the so-called nationally recognized testing laboratories. The result is that the AGA's and UL's find themselves with a protected monopoly. They do not have to worry about competition no matter how arbitrary or discriminatory their fees or services, may be.

Now, what effect does voluntary standards and certification programs have upon competition? At the outset it should be pointed out that we are talking about organizations that develop standards for, and certify products whose sales generate billions of dollars each year. One writer has put it this way:

* * * voluntary product standards can and do have significant effect on the economy and on society. A collective industrywide decision, for example, concerning what product characteristics are important and what quality levels constitute above or below standard can have a tremendous impact on competition and competitors, on industry structure, conduct and performance. The simple selection of the appropriate measuring rod and test methods can be crucial, just as the decision on how we measure 'Gross National Product' or 'Inflation,' 'Unemployment,' and 'Poverty' profoundly influence public choices. (Hemenway, "Industrywide Voluntary Product Standards," at page 10).

However, the effect on competition can be a positive one; a well conceived and fairly administered standardization and certification program can have a procompetitive effect, but if it falls into tainted hands, it can be a most convenient tool for crippling competition.

I am a strong advocate of the free enterprise system, consequently, I look with disfavor upon regulations that dictate the kind of products manufacturers produce. But, in our complex society, with its sophisticated mousetraps, we

need both design and performance standards; it is the only way to ensure that the public receives quality and safe products.

So, I accept standards and certifications as a modern day necessity. I would like to see the regulation end with the private standards developers and certifiers; but I am convinced that until the federal government takes steps to clean up the invisible corruption that exists in this activity, we will not have a free and open marketplace. I realize it is popular today to talk about deregulation. But, let's face it, history has shown that if the free enterprise system is to remain free, some government oversight is necessary.

In the area we consider here today, some government oversight is necessary. Simply stated, like politics, football or oil production, the players involved are human beings, and there is a great incentive to cheat. The Save-Fuel experience, which I now turn to, will present another solid chapter of evidence of why it is time that the federal government begin to fulfill its responsibility in this area.

In the Spring of 1965, I was approached by two brothers, Charles and Bill Diehl of Little Rock, Arkansas, about putting money into an invention they then had under a patent pending. After receiving an explanation of the principle of their device, I thought the potential great enough to contact my brother, Ellis T. Woolfolk, as to his opinion. He agreed that the principle was basically sound, so we agreed, for a controlling interest in the corporation, to raise the operating capital. Thus began my involvement with Save-Fuel Corporation.

The automatic damper that we display here today is considerably different from our 1965 model. Our first device worked on the principle of a bi-metal coil, which simply means that two pieces of metal are fused together with each having a different heat coefficient. As the heat builds up in the vent pipe, the metal will expand or bend causing the damper plate to open. When the furnace stops firing and the vent pipe cools down, the damper plate will close.

Actually, such a device was very easily made. It had no electrical connections and could be sold to the consumer for approximately \$10.00. It was not a new idea with no past experience as to its performance and safety. It was very similar and worked upon the same concept as the Diermayer damper, which is used widely in Germany. It is my understanding that the Diermayer damper has been in use for over thirty years, and that there are well over two million of these dampers installed in Germany and several other European countries. Nonetheless, we are told by AGA and the utilities that a bi-metal damper is unsafe.

Initially the manufacturing of the bi-metal damper went well. First, we had it tested by U.S. Testing Company of Hoboken, New Jersey, now called Nationwide Consumers Testing Institute Inc. The test results endorsed our claims regarding safety and fuel savings. We sold over \$100,000 worth of the bi-metal units in a very short period. However, we soon began receiving letters from the utility companies stating that the units were not AGA approved, and that if we did not cease selling our product they would immediately red tag any furnace where the device was installed (these utility companies were based primarily in Tennessee and Arkansas).

One can quickly glean a homeowner's reaction to this kind of threat. When he is put to the choice of having his furnace red tagged, he does not have to think long before reaching a decision. We also had to make a decision as to whether we would go to court and fight the utility companies or make a unit that would be satisfactory to AGA and, thus, satisfactory to the utility companies.

We were not well schooled in 1967 so we decided to go the AGA route. In determining what type of unit to make, we again got in touch with one of the vice presidents of U.S. Testing and asked him to find out from AGA what it would take in order to get an automatic damper certified. It is my understanding that he then contacted Ira (Chief) V. Mevers, Assistant Director of AGA Laboratories, whose primary duty was certification and testing; he replied in a letter that the unit would have to be electrical, interlocked with the thermostat so that the damper's plate would open prior to the ignition of the burner.

We then redesigned our device to incorporate these improvements and took it to AGA for testing. They informed us that even when the damper was open there was still an obstruction in the vent pipe and that we must compensate for that. They suggested we build a unit with a bulge in the middle, allowing the vent area to be the same as through the damper was not in the device. Upon

completing a prototype we looked around for a manufacturer that had furnaces going through AGA's laboratory which would allow us to have our damper tested on its furnaces. Southwest Manufacturing Company, makers of HeatWave Furnaces, agreed to our using its furnaces. Southwest had three different types, counter-flow, up-flow and horizontal units, going through the laboratory.

I should pause here to point out that at this juncture my brother and I both still held down full-time jobs, and the day-to-day operations of Save-Fuel were in the hands of the Diehl brothers. They made the trips to AGA labs and finally succeeded in obtaining certificates of approval for Save-Fuel's damper for use with both natural and LP gases for the aforementioned furnaces. I mention this because it may have been my lack of closeness to the day-to-day operations that later caused the confusion concerning exactly what kind of approval Save-Fuel received from AGA.

Upon receiving the certificates, we began manufacturing the devices and set up a sales force throughout the Mid-West and Mid-South. Being closely connected with advertising through my permanent job, I released through our advertising agency to all trade journals the fact that Save-Fuel's automatic damper had been tested and certified by AGA. We thought that we were on our way, but the release to the trade journals brought on yet another dark cloud.

Up to that point, the cooperation between AGA, primarily Chief Meyers, and our company was as good as could be. Chief Meyers even requested that he receive one of the units for his home. However, when the trade journal release appeared, it seemed the utility companies thought differently of AGA's testing and certifying a device that would cut into their sales. I am told that Chief Meyer's phone rang for about three months and that even his job was jeopardized. This, of course, hearsay, but there are times when hearsay should not be easily dismissed. I think when this Subcommittee receives the full story, it will understand and appreciate my ascertainment.

The utility companies took the position that our device was AGA certified only for original installation on a HeatWave furnace. Discussions with AGA confirmed the utility companies' position, and we were informed by AGA that any advertising to the contrary would not be consistent with the certificates granted. Indeed, in time AGA accused Save-Fuel of false advertising. As I noted earlier, I was not privy to the initial discussions between AGA and our company, and my actions following the receipt of the certificates were based upon what I felt the certificates held themselves out to be on their face. Now let's look at AGA's position following the utility companies' intervention.

First, AGA took the position that the vent damper was not certified for installation as an accessory. Yet, their certificates state that the trade name of the device certified is Vent-O-Matic and the company is Save-Fuel Corporation. (See Exhibit 3.) Nowhere on the certificates does the name of the furnace manufacturer appear. While the manufacturer's statement, which was put together by our people and AGA, notes that "... there are no standards for testing the Vent-O-Matic draft control as a heating appliance accessory . . .", it does not state that it was not certified as an accessory and cannot be installed as such. Rather, it goes on to explain how the device was tested and notes that, "The Vent-O-Matic is engineered to operate safely and efficiently for virtually a life time. It's installation is quite simple and can be done, in a few minutes, by any authorized person." (See Exhibit 4.)

In short, nowhere in the certificates themselves nor the manufacturer's statement, nor any other material we received along with the certificates, did I find anything expressly stating that the certification was limited to dampers installed as original equipment on a HeatWave furnace.

Second, I find AGA's position that the damper was certified for use only with a HeatWave furnace proposterous. All furnaces are tested by the same standards no matter what brandname the furnace carries. There are 3 different types of furnaces, counter-flow, up-flow and horizontal, which may use either IP or natural gas. Our automatic damper was tested for all 3 types of furnaces and for use with both kinds of gas: it was certified for all categories. (See Exhibit 3) Since all furnaces are tested under the same standard, we felt, and justly so, that approval on a HeatWave up-flow furnace would be adequate for a Carrier up-flow furnace, etc.

I pause here to point out that the Subcommittee must understand that although testing laboratories like AGA and UL label themselves non-profit

making organizations, they are really in the business to make money. (That aspect itself is well worth investigating.) For example, on a later date when I visited with Chief Meyers at the AGA lab, he told me that if we would bring in our device and have it tested on most furnaces, he felt sure that the lab would approve it. I remember telling him at that time that that would necessitate a great expenditure of money. There are approximately 800 different furnace manufacturers, each making several models, and the cost of tests, according to the information I had, amounted to between \$1000 and \$2000 per test. As you can see, this could get above \$1 million in a hurry; I did not have that kind of money.

It was during this period that I got the feeling that AGA and its associated armies were beginning to march against us. I am sure that AGA felt that its road of frustration would, sooner or later, force us to close shop and go home to stay. Indeed, there are times when I feel that one person is just too small an army to shoot the cannon at such large giants, but I have been shooting, I am still shooting and will continue to shoot until justice prevails.

During this period we were informed that before we could have our damper approved as an accessory standards would first have to be written. As soon as we learned that standards had to be promulgated, we immediately requested that we be allowed to go before the Z-21 Committee in order to obtain such standards. (The Z-21 Committee is an ANSI committee and AGA acts as the Secretariat.) In 1969, Mr. Charles Diehl, then president of Save-Fuel Corporation, presented Save-Fuel's automatic damper to a Z-21 subcommittee. Nothing was done the following year.

Faced with the AGA blockade, we found it was impossible to carry on with a sales and manufacturing crew; in order to minimize expenses, we decided to move our plant from Vilonia, Ark. to Tunica, Miss. At the same time, we had notes at the bank to meet. My brother and I accepted the responsibility for the notes on the condition that the Diehl brothers assign all their interest in the company over to us. From that point on, I was the only one really active in promoting and pushing the automatic damper.

In 1971, I made a formal presentation to the Z-21 Committee. It was suggested that a chairman of a task force be appointed and standards for automatic dampers be considered. The chairman did not serve. Indeed, Mr. O. C. Davis, who was appointed chairman, wrote a letter stating that he was surprised to learn he had been appointed. (See Exhibit 5) Thus, another year passed without anything being done. However, I kept pressing the people at AGA and at the next annual meeting of the Z-21 Committee, a task force was appointed with Mr. Walter Johnson of Chicago at chairman. A year was spent drawing up standards, which seemed to satisfy everyone on the task force; these standards were then presented to the Z-21 Committee for vote.

In order to expedite matters, these standards were mailed to the 41 members of the Z-21 Committee and a vote returned 33 for, 7 against, and one abstaining. Since only a majority was needed, we thought, once again, our fuel-saving device had succeeded—we were wrong.

The Committee gathered the 7 votes against, along with their reasons, and suggested that all members review with the thought of changing their vote. Seventeen were changed and by the time for the annual meeting a suggestion was made by the Executive Committee that the damper be approved only for use on new furnaces. The suggestion was made prior to our demonstrating a prototype unit incorporating all revisions in the new standards and proving that it was impossible to install the device improperly.

The Executive Committee's suggestion was approved, and we, not being in the furnace manufacturing business, were promptly out of business. Sure, it was a great loss to me and my company, but it also was a great loss to the American people.

There is another important point to be considered regarding the Executive Committee position that a standard be developed allowing certification of automatic dampers only as original equipment. Why did they need such a standard? We already had our device certified for installation as original equipment and could get it for all brandnames if we were willing to cough up a million bucks. The only thing that I can surmise from this action is that AGA is saying that when they certified our device as original equipment, they certified an unsafe device. It should be noted that as the new standards are presently written, our device does not meet them, however, I am sure all

the large furnace manufacturers are working on their own automatic damper in accordance with their AGA developed standard.

The answer to the question why wasn't Save-Fuel able to get the Z-21 Committee and AGA to approve automatic dampers as a retrofit unit, I think, is an easy one. We brought our vent damper on the market when utility companies were not experiencing today's gas shortages. Indeed, on several occasions our sales people returned and stated that they were told by a utility representative that they (the utilities) were in the business of selling gas, not saving gas. Now that the gas shortage has hit, and utility companies can sell all the gas they have, many would like to use automatic dampers and other fuel conservation devices; however, we are still faced with opposition from furnace manufacturers, who now, given the gas shortage, find that the only market for their furnaces is the replacement market.

Now, what does all of this mean? Well, first you have to look at the Z-21 Committee and the relevant subcommittees. Between the furnace manufacturers and the utilities, they can control the Z-21 Committee, and the subcommittees do not have to be "balanced." Thus, all it takes is for one of these two interests to oppose the party who is trying to get in and that's the ballgame. They do not have to get behind closed doors and agree upon a well conceived plan; I am convinced that the various interests on standards-development committees soon come to a kind of silent understanding that they will operate on the principle that X needs me today and I might need him tomorrow. Stated differently, they know each others language and signals. Thus, little is ever done in these committees that will really hurt a given interest.

In short, the manufacturers of furnaces were not going to approve a device that the utility companies were opposed to because it would cut into their gas sales. And, today the utility companies, on the Z-21 Committee, are not going to approve a device that the furnace manufacturers cannot market. When each furnace manufacturer can market and sell its own automatic damper, the American public will be able to buy one as a retrofit unit or as original equipment. Indeed, I have heard that it has been said that there will be an automatic damper, but Save-Fuel will not be the manufacturer.

During the long wait for the Z-21 Committee to develop standards, we did receive some encouragement from other sources. However, every time we received a plus, AGA moved on the scene to convert it into a minus. For example, in 1970, we presented our damper to the Canadian Gas Association; it was tested and given their approval in October. (See Exhibit 6) A letter of recommendation was made to the Interprovincial Gas Council and it was approved by a majority for marketing in Canada. However, six months later at the next Interprovincial Council's meeting, their approval was withdrawn. I have heard that AGA had a hand in precipitating this action.

The Council said they did not want any unnecessary obstruction in the vent pipe. (See Exhibit 7) True, we could not market our product in Canada, but we still had the confidence given us by the Canadian Gas Association's approval, and the Interprovincial Gas Council's position, by their own words, was not based upon any shortcomings they found with our device. Nonetheless, time and time again, AGA has made statements to the effect that the Interprovincial Council withdrew their approval because once our device was in the field they discovered the so-called "hidden problems" it presented. That simply isn't true.

In 1972, we were on the verge of obtaining approval in Seattle, Washington, when an article by Mr. Jack Anderson appeared. (See Exhibit 8) This article did us a great deal of good, but at the same time, a great deal of harm. The article immediately turned all utility companies against our product. And, AGA went to work again. For example, it so happened that the new Chairman of the Board of AGA, Bill Woods, lived in Seattle, Washington, so consequently, our approval did not go through in that city. Once again, AGA was able to turn a plus into a minus.

But, as I noted, the Anderson article did do us some good. It even brought us a visit from the Chief Engineer of the Federal Power Commission, Mr. Charles Byrd. He was extremely impressed by our damper and felt it was the most positive step in fuel conservation he had ever seen.

During this period, I was also working with the Memphis Light, Gas and Water Division with the hope of gaining their approval for installation of our product in the City of Memphis. After considerable testing, we were able to

get permission for installation in Memphis. This was accomplished by the local gas inspector, Mr. Frank Thorn, working with MLG&W personnel. (See Exhibit 9)

In December, Orville Hancock wrote an article for the Memphis Press-Scimitar which described our device and the tests conducted by Memphis Light, Gas and Water Division. In the article he quoted what some of the officials at MLG&W had to say about our device. For example, the paper quoted Mr. Neumon Taylor, head of the MLG&W Division, as stating: "MLG&W is all for the damper. We know it is fully tested and ready for use and that it is completely safe." (See Exhibit 10)

The article also pointed out that Mr. George Watts of MLG&W found savings of 8-12% with attic furnaces and savings of 20-37% with other furnaces.

Now, to fully appreciate what happened after this article appeared, one must consider the environment at the time. As I noted earlier, Mr. Jack Anderson had published an article on October 23, 1972. (See Exhibit 8) I understand that AGA issued a press release denying the allegations made in the Anderson article and questioned its accuracy. Then in December came the Memphis article quoting officials at MLG&W, and adding credence to Anderson's allegations. In short, AGA was caught in a bind.

Shortly after the Hancock article appeared, Mr. Hart, president of AGA, paid a visit to MLG&W. I am told that AGA put considerable pressure on MLG&W employees to change their positions. The events that took place following Mr. Hart's visit would seem to bear this out. For example, while I understand that Mr. Neumon Taylor now denies making the statement I quoted above, he did not deny it when I saw him a few days after the article appeared and thanked him for his kind words about our automatic damper.

We also began to learn from prospective purchasers that they had called MLG&W to inquire about our device, only to be informed that the device was unsafe and could not be installed. In fact, I had my wife call and pretend to be an interested customer and she received a similar reply. When she insisted that the device had been approved for installation, they said that the device was dangerous and hazardous and that they had since changed their minds; they said that they would only approve its installation if my wife would sign a statement holding them harmless for any catastrophe that might occur. I later called Mr. Grady and complained about this and he said he would correct the problem. MLG&W even went to the extent of publishing a position paper which noted that MLG&W accepted for installation only those devices that are AGA approved, but conveniently failed to mention that their regulations also allow one to gain approval by going directly to the utility company, and that our device had been approved by that procedure. (See Exhibit 1)

I have heard that MLG&W has stated that its position paper was necessary because of false and misleading advertising on Save-Fuel's part. That is untrue. I have not published in any newspaper that MLG&W endorsed the Save-Fuel damper, and I challenge MLG&W to present any evidence to the contrary. We did point out in our advertising that it was accepted by the City of Memphis, which was true. (See Exhibit 11) On several occasions, I did show a letter written by Mr. R. W. Vaughn, which praised our device, to other utility companies. (See Exhibit 12) However, the letter contained no restrictions, and I certainly did not publish it in any newspaper. I showed the letter because I was pleased to have it, and I did not understand that such actions would violate the author's confidence.

I am convinced that MLG&W's actions following the publication of the Hancock article was precipitated by pressure from AGA. I think it simply came down to this: Given the Anderson article, AGA's reactions thereto, and the Hancock article, AGA found itself in a difficult position. When AGA presented this dilemma to MLG&W, it was simply a matter of MLG&W employees choosing sides—Save-Fuel Corporation or the people that they serve with on AGA committees.

In closing, Mr. Chairman, I would like to emphasize that what is badly needed in this area of commercial activity is competition. As I noted earlier, AGA and UL have a protected monopoly. I am reminded of a story I once heard down South regarding a farmer and his dog. As the story goes, the old farmer's dog became finicky and no matter what kind of choice foods the old farmer put before the creature, he would simply turn up his nose and walk away. So the old farmer went out and brought home a second dog, and from

that point on the old dog lost his discriminating taste. That is what a little competition does.

Mr. Chairman, I am prepared to answer any questions that the Subcommittee may have. I would, however, like to request at this time that the record be held open in order that I may supply additional information in this matter.

Thank you.

Exhibit 1

PART II—INSTALLATION REQUIREMENTS, GAS SERVICE POLICY MANUAL, 1972 EDITION, MEMPHIS LIGHT, GAS AND WATER DIVISION, MEMPHIS, TENN.

211 GAS APPLIANCES FOR RESIDENTIAL AND COMMERCIAL USE

211.1 General

211.11 Each gas appliance and accessory installed for domestic or commercial use shall comply with applicable ANSI Standards covering safe operation, substantial and durable construction and acceptable performance. Such compliance may be determined by the presence on the appliance or accessory of a label of a nationally recognized testing agency¹ acceptable to the Division, qualified and equipped to perform the tests necessary to determine such compliance and maintaining an adequate periodic inspection of current production models, and whose label on the appliance or accessory states that its design complies with national safety requirements. Such compliance may also be determined by the listing of the appliance or accessory in a list published by such nationally recognized testing agency, which states that the appliance or accessory design complies with national safety requirements. [In cases where no applicable ANSI Standards have been developed for a given class of appliance or accessory, approval of the Division shall be obtained before the appliance or accessory is installed.]

211.12 Only gas appliances designed to operate on natural gas or substitute natural gas having a specific gravity of approximately 0.6 and a heating value of approximately 1,000 BTU per SCF shall be connected to fuel lines served by the Division.

211.13 All gas appliances and their flue or vent connectors shall be installed so that continued or intermittent operation will not create a hazard to persons or property, and shall be installed and vented in compliance with the specific requirements given elsewhere in this manual and in accordance with the manufacturer's instructions. A copy of the manufacturer's installation, operations and maintenance instructions shall be left on the premises.

211.14 Installation of gas appliances in garages, aircraft hangers or other special areas shall be in accordance with the following:

(a) Gas appliances shall be located, or reasonably protected, so that they are not subject to physical damage from external sources such as moving vehicles.

(b) Gas appliances may be installed on the floor of a residential garage provided a door of the garage opens to an adjacent ground or driveway level that is at or below the level of the garage floor. When this condition does not exist, appliances shall be installed so that the burners and pilots are at least 48 inches above the floor.

(c) Gas appliances may be installed in commercial garages under the following conditions:

1. Heaters may be located in a room separated from other parts of the garage by constructions having at least a one hour fire-resistance rating. This room shall not be used for combustible storage and shall have no direct access from the garage storage or repair areas. All air for combustion purposes entering such a room shall be from outside of the building.

2. Floor mounted heaters may be located in the garage if they are installed so that the bottom of the combustion chamber is at least 48 inches above the floor and outside grade level. Such heaters shall be protected from physical damage by vehicles.

3. Overhead heaters shall be installed at least 8 feet above the floor.

4. Sealed combustion system heaters may be located within a garage. When necessary, they shall be protected against physical damage.

¹ The American Gas Association, Inc., Laboratories are such a nationally recognized testing agency.

(d) Heaters in aircraft hangers shall be installed in accordance with NFPA No. 409-1069, Standard on Aircraft Hangers.²

(e) Gas appliances to be installed in specialized areas such as spray booths, dry cleaning plants, etc., shall conform to the applicable

Exhibit 2

[From the Supply House Times, April 1975]

NEEDED: A DECLARATION OF INDEPENDENCE FOR OUR INDUSTRY

REMARKS OF CHARLES HORTON AT AIM MEETING

(This month's editorial is based on an address of Charles Horton, publisher of Supply House Times, at the Association of Industry Manufacturers meeting, during the Southern Wholesalers Convention.)

Next year will be the 200th anniversary of the Declaration of Independence. It was a revolt against tyranny, against unjust taxation, against the abuse of power by government agencies, against arbitrary interference in the commercial affairs of the American colonies.

As our 200th birthday approaches, now would be the proper time—indeed, the time is long overdue—for manufacturers, wholesalers and contractors of our industry to assert their Declaration of Independence against the abuses of power, the extortions, the non-sensical whims and discriminatory, unlawful actions of various code jurisdictions and self-appointed testing, approving, licensing and listing bodies around the country.

In clear violation of the U.S. Constitution which forbids states or municipalities to impose internal tariff barriers; in clear violation of the Anti-Trust laws which forbid interference with the free flow of commerce; in clear violation of the laws of every state which forbid conflict of interest and extortion; these jokers, like the robber barons of the Middle Ages, presume to say: "This turf is mine; you can't bring your goods into it unless I say so; unless you conform to my requirements, no matter how unreasonable and whimsical they might be; unless you bow down to me; unless you have my listing or label; unless you first pay me off."

In outrageous, unlawful abuse of the code power, whole classes of products are denied access to major markets, even though they have been used with satisfaction in all other territories for years. Individual styles of products that are accepted in 99% of the country are not allowed in a particular jurisdiction. There is a plague of useless, unnecessary, repetitive, redundant testing of long-proven products, even though made to exacting, nationally accepted specifications by reputable manufacturers.

Peckerwood plumbing inspectors and association officials, with no technical qualifications whatever, proclaim themselves as authorities on complex engineering, chemical and metallurgical matters that they know nothing about. Never mind that the product has been accepted and used in its present form for 30 years; never mind that it is built to long-accepted standards; never mind that it meets all applicable federal specs; never mind that it is made by a reputable manufacturer; never mind that it is backed by a million dollar liability policy; he is the expert, he knows best; and if you are going to sell it in Podunk, you have got to kiss his ass.

Free American citizens, tax-paying American corporations, have to get down on their knees and beg a right which is already theirs; a right which nobody has any legal basis whatsoever to deprive them of—and that is the right of free access to the entire national market. Forms have to be filled out; humble, humiliating appearances and pleas have to be made; fees have to be paid—not once, but year after year. On some products, in some markets, you must, in effect, buy an annual license to sell. Every year, you have to go through the same time-consuming, expensive, exasperating exercise anew.

ABUSE OF CODES

Before going further, let me emphasize that nothing in these remarks disputes the necessity of sensible building codes, legitimately interpreted and enforced.

² Available from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass. 02110.

Minimum design and installation standards are essential to the protection of the public, and these requirements can reasonably be different from one area to another, depending on such variables as snow loads, wind velocity, local topography, soil conditions and water characteristics.

Nobody who knows anything about building will argue with reasonable requirements concerning the strength of the roof, or adequate sizing of supply piping, or proper venting of fixtures, or sufficient return air ducts, or suitable relief devices on water heaters and boilers, or reasonable protection against trap pull and back-flow. And certainly nobody would argue with good installation standards.

Proper design and installation standards are the *legitimate* area of code authority, and we need more of that, not less. The slackness and neglect in enforcing these is a national disgrace. Instead of doing what they are supposed to do, many code authorities are forever fooling around with products—with specific styles and types and even brand names of products—which is not their responsibility or area of authority.

The argument is not with the proper purpose of codes but with their abuse for unreasonable, unfair, discriminatory and unlawful purposes. Sometimes the abuse stems from nothing more nefarious than the ambition, whim or dogmatic "ism" of a local official. It inflates his ego and sense of self-importance to make people do it his way; to force manufacturers to come to him on bended knee and implore his blessing.

He has a "thing" about traps, or back-flow valves, or dishwasher hook-up or something. Maybe he's got himself a little laboratory where he can simulate 17 different impossible coincidences of conditions at the same time, and he can prove that there is one chance in 10,000 that this problem might actually occur. So he comes up with his super, exclusive, expensive, 50-times overkill solution of the problem, and it's got to be his way.

Never mind that there is no known instance where the problem did in fact occur; never mind that other authorities disagree; never mind that no other community has his requirement, yet somehow have not been visited with plague and pestilence. They are all wrong; he knows and you've got to do it his way.

Sometimes the abuse is just routine bureaucracy. The requirement got into the code years ago; nobody knows why; it serves no sensible purpose and is to the benefit of nobody, but it's still there and will go on forever.

In some cases, the abuse is clearly discriminatory in favor of some local manufacturer. He succeeded in getting some minor requirement written in that is different from every other place in the land. It serves no functional purposes, but it does shut out competition and give him a protected local market.

Often the abuse results from a conspiracy with building trades unions to feather-bed. They are out to preserve the highest possible labor content in every type of installation and product. New products and less costly methods are outlawed, in gross discrimination against the manufacturer, in clear violation of the Anti-Trust laws, in arrogant contempt of the public interest.

And sometimes there is the threat, if not the fact, of outright extortion. Some organization sets itself up as the arbiter of product acceptability, and demands the payment of an annual tribute for its approval and permission to sell.

All of these activities are an abuse and perversion of the code authority. All interfere with the workings of a free market; all impede the flow of commerce, hence are in violation of the Anti-Trust laws. All invade the rights of American citizens and business enterprises. All add to the cost of manufacturing, distribution and construction. All cause unnecessary problems for producers, contractors, distributors and builders. All victimize the public.

SELF-APPOINTED GUARDIANS

In addition to the code abuses of legally constituted public agencies, our industry must suffer the harrassment and attempted extortion of various associations, foundations and whatever who have no legal status at all. They proclaim themselves the guardians of the public health and safety, and then demand that plumbing industry manufacturers recognize their non-existing expertise and authority, and foot the bill for their activities through annual license fees or purchase of the right to their seal or listing of approval.

In effect, purely private bodies try to arrogate to themselves a licensing and taxing authority. They represent nobody but themselves; they have so little

confidence in the worth of their activities that they charge their members only nominal dues—not nearly enough to support the officials of the organization in the manner they would like to become accustomed. So sooner or later they try to get themselves a product approval racket going.

Of course, it is all in the interest of public health and safety, and allegedly voluntary. But always in the background is the threat, if not the fact, that their membership includes plumbing inspectors who will—and, in fact, have—abused their public authority in support of the selfish purposes of this private organization. Their tendency is to prey most aggressively on the smaller manufacturers who don't have the resources or a strong association to defend their rights. Not being able to fight, they pay the annual tribute in order to avoid problems in the market place.

THE IAPMO CAPER

In the western states there is something called the International Association of Plumbing and Mechanical Officials. It is an association of plumbing inspectors, pure and simple. It is not an official body of any state or municipality. It is set up as a nonprofit corporation, but developed some very profit-minded ideas as to how it was going to protect the public health and safety. It came up with a "shield" of approval and a listing service for "approved" products.

While its use was "voluntary," their code required that "all pipe, pipe fittings and fixtures shall be listed or labeled by a listing agency, or shall be approved by the Administrative Authority when listing or labeling by a listing agency is not available." Another section provided that "all materials and devices used or entering into the construction of plumbing and drainage systems or parts thereof shall be marked and identified in a manner satisfactory to the Administrative Authority."

The IAPMO caper was audacious beyond belief, and also stupid beyond belief. They actually thought that they could carve out about 25% of the national plumbing market as their private domain, and build their private tariff wall around it, and shut out anybody who didn't pay.

All products had to be listed and labeled in a manner satisfactory to the Administrative Authority. The Administrative Authority were the plumbing inspectors who belonged to IAPMO, and IAPMO owned the listing service and the shield. They were attempting to require that every manufacturer must get their approval for every item in his line. Not generic classes of items, or by group; but every catalog number, item by item, had to be listed and labeled.

And how was he to get this approval? By sending a sample of each item at his expense for their "inspection." Not testing, because they have no testing facilities, but simply "inspection," which presumably means they would look at it. And if you wanted the product back after this searching inspection, you had to pay for that too.

Of course, you also had to fill out a lot of papers and there were a few fees involved; an *application fee* of \$25—and "each product will require a separate application"; plus a *directory listing fee* of \$195; plus a *product evaluation fee* to be based on the number of sizes of models or groups. For one item \$110; for 10 items \$290; for 15 items \$390—plus \$3 for each item over 15.

Thus, for a line of 10 catalog numbers the total cost would be \$510; for 100 a mere \$865; and for 1,000, make it \$3,565. And they didn't mean one time. It was to be an *annual* thing! Just for the listing.

But don't forget the labels, because your "products must be marked and identified in a manner satisfactory to the Administrative Authority." You would buy the labels from them in bulk to affix to your products.

Just to make sure that public health and safety was not jeopardized by the carelessness and incompetence of manufacturers, they claimed the right to come to your plant at your expense, unannounced and as frequently as they chose, to inspect your manufacturing and quality control methods.

They weren't just fooling around with traps and back flow valves and the usual devices that so preoccupy the guardians of health and safety. They wanted it all, everything that goes into a plumbing system, and not content with that, they wanted the appliances as well! About 50 product classifications were specifically named, including bathtubs, lavatories service sinks, shower receptors, all types of pipe and fittings, faucets, hose bibs, solder, duct tape, solvent cement, valves ballcocks, clothes washers, dryers, ranges, refrigerators, vegetable peelers and waste disposers.

Putting appliances in a plumbing listing was a transparent device to cast a seeming legitimacy over the whole caper. All appliances carry either an AGA or UL label. Presumably, these would qualify as recognized listing agencies. But there being no equivalent agency to list plumbing products. IAPMO would step into the void and provide the public this needed protection.

One thing you must give these boys credit for, they were thinking big! Had they been able to put it over, they wouldn't have been able to count all that money. And they did try. In 1973, in Orange County, California, the largest construction market in the West, the plumbing inspector started "red-tagging" products that were not listed, and advised that any product that did not get listed within 60 days could not be installed in that jurisdiction.

The whole industry hit the ceiling, with the Valve Manufacturers Association in the forefront. They made it clear that IAPMO could expect vigorous legal action if they persisted in this caper. IAPMO decided it might be wise not to protect the public health and safety in that particular manner at this time, and quickly backed down. The listing program has now been put in abeyance until such time as through the processes of education the industry has a better understanding of the noble purpose it was intended to serve.

The matter was brought to the attention of the Federal Trade Commission and they are now investigating it. Hopefully, the inquiry will also look into other abuses of the code authority in our industry.

When that IAPMO fellow addressed the AIM annual meeting in this city five months ago, he said with sweet reasonableness; all right, if you don't like our approach, work with us on our common problem, let us have your thinking.

The fact is, you have no common problem with them. There is no need, there is no legitimate purpose in their approval and listing and pasting their seals on your products. Their problem is their finances, so let them raise their dues, which are now \$10 a year. Your problem is to keep their hands out of your pockets. The only thing you have to talk to them about is that they had better beware.

TIME HAS COME

The IAPMO caper was not the first attempt at a private empire in our industry, nor will it be the last. Just imagine what it would be like if they had gotten away with it. Others would have rushed to cut themselves in on the same racket. In no time, the national market would be Balkanized into a crazy quilt of petty fiefs, each demanding its toll.

The fact that our industry has submitted to manifold abuses of code authority for decades doesn't mean that it should continue to do so, or forever must. It is time to stand up to these petty tyrants and tell them that we will no longer put up with their whims, favoritism, discrimination, extortion and violation of the law.

This is one country, one national market, not a patchwork of private domains. They don't own the market in their individual jurisdictions. They have no right to decree who can enter them, on what terms.

The fact is, this whole silly business is based on a long-outmoded historical condition and addressed to a need that ceased to exist many years ago. Ours is not an infant industry in the early, groping stages of a new technology. Basic product and system designs are long mature and have stood the test of time.

There might have been some justification for this local vigilance about plumbing products 50 years ago when the industry was still developing its basic technology and when many manufacturers were small, local and inexperienced. If there ever was a justification, it has long since passed, but we are still stuck with the outmoded concept that every code jurisdiction can be a kingdom of its own.

Bear in mind that we are talking about ordinary residential plumbing and heating systems, not atomic power plants. The normal water pressure is 60 lb. The typical valve in the system won't be operated once a year. Who would seriously contend that such a system poses a threat to public health and safety? Rarely does it even pose a threat of damage to property, and that no more serious than a mess of water in a basement.

Where is there a valid public need for some officious bureaucrat to approve the bathtub or faucet or hose bib or stop and waste? Or the pipe and fittings, or any of the standard products of our industry? And for God sakes, hasn't the very limited subject of trap seals and back-flow prevention been researched to death already, 50 times over? There isn't all that much to know about it. But they keep pounding away, year after year, transfixed and fascinated, like a medieval alchemist seeking to find a way to turn lead into gold.

I believe that sometime in the next decade, and hopefully soon, we will see a landmark finding of the Federal Trade Commission or a federal court that will put a stop to all this nonsense and petty tyranny once and for all. The Anti-Trust laws will be found specifically applicable to abuses of code authority that are clearly in restraint of trade.

If there is such a decision, it will take all the fun out of being arbitrary and denying vendors access to the market. For under the Anti-Trust laws, the injured party can sue for triple damages. It won't seem like such a cute idea then to pervert the code authority in the interest of union feather-bedding or favoritism to a local manufacturer.

Manufacturers are not at the mercy of these petty tyrants and chiselers. You have recourse. If you are the victim of an arbitrary abuse of power, or conflict of interest, or attempted extortion, go to the attorney general of that state. It's his job to enforce the state laws against it. If you are the victim of discrimination, or an attempted boycott, monopoly or denial of access to a market, go to the Federal Trade Commission. It's their job to enforce the Anti-Trust laws. When a group of manufacturers are collectively being victimized, then through their trade association they should collectively sue in federal and state courts.

Hearings will be held this year by a Senate subcommittee toward a revision and up-dating of the Anti-Trust laws. The abuses I am talking about are a perfect case in point of why it is needed.

The abuses of the code power that have long plagued our industry are possible only because of the acquiescence of the victims. The time has come to revolt, to issue our own Declaration of Independence, to have our own Boston Tea Party, to tell the petty tyrants and would-be robber barons to hit the road. It is never too early to stand up for your rights, and the events of 200 years ago suggest that it is a pretty good idea.

Exhibit 3

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

(No. 4-(2271.1., -1.1 & -1.2).001-17X—Basic model test date Dec. 31, 1967)

Type of appliance—Upflow type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VHL75-DD.

Gases—Natural.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or

Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

(No. 4-2271.8, -1.8 & -2.3).001-17X—basic model test date of Dec. 31, 1967)

Type of appliance—Downflow type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VCF125-BD with suffixes -3, -4 or -5.

Gases—Natural.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

(No. 4-2126.501-17X—basic model test date Dec. 31, 1970)

Type of appliance—Horizontal type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VSH140-B5.

Gases—Natural.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by
F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

(No. 4-(2271-1.1 & -1.2).001-17X—basic model test date Dec. 31, 1967)

Type of appliance—Upflow type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VHL75-DD.

Gases—Propane.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by
F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

No. 4-(2271-2.8, .8 & -2.3).001-17X—Basic model test date Dec. 31, 1967)

Type of appliance—Downflow type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VCF125-BD with suffixes -3, -4 or -5.

Gases—Propane.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by
F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

AMERICAN GAS ASSOCIATION LABORATORIES APPLIANCE CERTIFICATE

(No. 4-2126-1.501-17X—Basic model test date Dec. 31, 1970)

Type of appliance—Horizontal type forced air furnace.

Tested under standards—Z21.47.

Trade name—Vent-O-Matic.

Number—VSH140-B5.

Gases—Propane.

Company—Save Fuel Corp.

Address—Tunica, Miss.

American Gas Association, hereby certifies that it has examined the design of the appliance(s) constructed as indicated by the Laboratories' description set forth in appendices attached hereto. The appliance design(s) has (have) been found to comply with applicable parts of the standards indicated above, and the manufacturer may display on it (them) the Laboratories' Certification Seal for Appliances, which has been registered in the U.S. Patent Office by the Association. This Certificate is not assignable nor transferable without written consent of the Association and is revocable if any attempt is made to apply it to any appliance or appliances not designed and constructed exactly in accordance with the unit herein described. This certificate expires at the end of the calendar year 1972. The manufacturer or other party to whom this certificate is issued has signed either the Application for Certification of Appliances or Accessories or the Distributor's Listing Agreement applicable to such year, and the certification is subject to all the terms and conditions specified therein.

Issued at Cleveland, Ohio, effective this 1st day of January 1972, by F. E. Hodgdon, *Director, Laboratories.*

F. DONALD HART,
President.

Exhibit 4

MANUFACTURERS STATEMENT

Presently there are no standards for testing the Vent-O-Matic draft control as a heating appliance accessory, thus it was attached to the draft hood outlet of two nationally known gas-fired furnaces, both downflow and upflow type and the furnaces so equipped, were tested by the American Gas Association Laboratories under the appropriate furnace standard, which is Z21.47. The furnaces equipped with the Vent-O-Matic's were certified by the American Gas Association as complying with the standard when used with both natural and propane gases. As a part of A.G.A.'s test procedure the Vent-O-Matic draft control was cycled continuously from the open position to the closed position 100,000 times. A.G.A.'s test on the electrical components of the device was satisfactory and they judged the device acceptable from the standpoint of accessibility for servicing and replacement of parts. No tests were conducted by A.G.A. to verify any claims with reference to an increase in efficiency or decrease in gas consumption, however, the device has been tested for fuel savings by an independent testing laboratory.

The Vent-O-Matic is engineered to operate safely and efficiently for virtually a life time. Its installation is quite simple and can be done, in a few minutes, by any authorized person.

Even though the Vent-O-Matic is intended primarily for use on central furnaces it can be installed with similar results on many individual room heaters and unit heaters, providing they are equipped with an approved draft hood and controlled with 24 volt A.C. electrical system. Use of the Vent-O-Matic is in all cases subject to the approval of local code authorities.

Exhibit 5

LOS ANGELES, CALIF., May 31, 1972.

MR. CHARLES E. WOOLFOLK,
*Vice President, Save-Fuel Corp., Memphis Sales Office,
Memphis, Tenn.*

Thank you, Mr. Woolfolk, for your May 22 letter. I was surprised, however, at the report that I had been appointed chairman of the committee to write

standards for the Vent-O-Matic. Perhaps the explanation is contained in the following paragraph which is taken from the GAMA Information Letter dated April 10, 1972 which reports on "What Took Place" at the April 5 meeting of the Z21 Committee:

"Automatic Dampers—The request to develop an accessory standard for a device which closes the flue outlet of a heating appliance when the burner is not in operation and opens the flue outlet upon ignition of the burner was reviewed by the Executive Committee. The Executive Committee recommended that an accessory subcommittee be formed to develop a standard for this device and that the warm air furnace and boiler subcommittees be instructed to develop coverage for its proper installation and use. The Committee concurred with this recommendation."

I am chairman of the warm air furnace subcommittee, and so far as I know, my involvement will be limited to participating in that subcommittee's development of installation instructions.

In any event, you are certainly welcome to attend the meeting of the warm air furnace subcommittee when this subject is discussed. When that will be I have no idea, but probably not for several months.

Cordially,

O. C. DAVIS,
Appliance Standards Representative.

Exhibit 6

CANADIAN GAS ASSOCIATION,
Don Mills, Ontario, October 30, 1970.

CERTIFICATION OF LISTING—AUTOMATIC VENT DAMPING DEVICES

("Vent-O-Matic" models VM-(4,5,6,7)-C—Basic model test date Dec. 31, 1970)
Report No. 1294-SP-2821

Mr. D. C. NICKLES, P. Eng.,
*Save Fuel Corp.,
Tunica, Miss.*

The Canadian Gas Association Testing Laboratory of the Approvals Division has examined the Automatic Vent Damping Devices noted above and our Report to the Interprovincial Gas Advisory Council has been accepted by the majority of the members.

The Canadian Gas Association is pleased to authorize the use of its listed symbol on the subject devices.

J. E. HEELEY,
*Manager,
C.G.A. Testing Laboratory.*

JULY 12, 1972.

Subject: CGA Certification re Vent-O-Matic Damping Device.

Mr. EDWARD MERTENS,
*Vice President, Vantal Distributing Co.,
Spokane, Wash.*

DEAR SIR: The CGA Testing Laboratory has been verbally authorized by telephone July 5 by Mr. Charles Woolfolk of the Save Fuel Corporation to release certain information concerning certification by CGA of Save Fuel's "Vent-O-Matic" automatic vent damping device.

In general this device, because a formal Canadian Standard did not exist, was examined under our Test Report system. Originally a preliminary discussion was held between CGA and the Save Fuel Corporation to agree on a test procedure. When the device successfully met the agreed procedure, a report was sent to the Canadian authorities—the Interprovincial Gas Advisory Council—recommending their acceptance. The majority of members of this authority did accept, and CGA subsequently listed the damper under the various pipe sizes in its Directory. At a later date the authorities in Canada reviewed the certification and, if my memory is correct, reversed the earlier decision. *The reason*

given for the reversal was that the device was not acceptable on the basis that no unnecessary device should be allowed in a venting system.

The CGA Testing Laboratory based its recommendation for acceptance on the following successful completion of tests.

FLOW RESISTANCE

The automatic damping device was connected to a furnace vent and then a 90° elbow, plus a 2 ft. section of horizontal pipe, a second elbow plus sufficient vertical pipe to give a distance from draft hood relief opening to top of pipe of 4 ft. (This is the abnormal spillage test carried out by the Laboratory for forced air furnaces for high altitude). A smoking agent of titanium tetrachloride was introduced into the combustion area and a check for spillage around the draft hood relief opening was made. The venting device was then removed and just the two elbows, horizontal and vertical sections again measuring 4 ft. from the relief opening to the top and the test carried out a second time. In each case there was no visible spillage around the relief opening of the draft hood. It was therefore concluded that the venting device did not exercise additional resistance in comparison to normal vent piping.

Temperatures on the electrical components were checked in the following manner. The venting device was fastened to the vent of a 100,000 input furnace. A length of pipe restricted at the outlet was added. The draft hood was insulated and also the pipe and then the vent restricted until the temperature reached 480°F rise. The 480°F is the maximum rise permitted in the forced air furnace Standard. The unit was allowed to reach equilibrium and the temperatures of the components were within permissible range and the damper was not affected in any adverse manner by these temperatures.

The damper was continuously operated at room temperature for 10,000 cycles.

At the request of a Provincial authority the Laboratory continuously cycled the damper 100,000 times with the stack temperature set at the maximum 480°F. The 480°F, incidentally, is temperature rise, therefore the total temperature would have been 480° plus room (75°) for a total of 555°F.

After the 100,000 cycles the electricians were checked for obvious physical problems and a di-electric test was conducted. There was little or no deterioration of bearings or other physical features and no difference in the di-electric results obtained in earlier tests. After the 100,000 cycles the same device was set up with a timing mechanism to give approximately 3 minutes burner on and 2 minutes burner off cycle for 1,000 times. Again there was no problem with the operation of the unit or again the di-electric test.

If any further information is required, please do not hesitate to contact the writer.

Yours very truly,

THE CANADIAN GAS ASSOCIATION,
J. E. HEELEY, *Manager*,
C.G.A. Testing Laboratory.

P.S.—To signify that C.G.A. certifies components such as the venting device, our Listing Symbol "C.G.A." is permitted to be used.

Exhibit 8

[From The Commercial Appeal—October 23, 1972]

GAS MEN STALL ON FUEL SAVER

(By Jack Anderson)

WASHINGTON.—A device that would cut the homeowners' gas bills by 20 to 30 per cent has been kept off the market by the American Gas Association.

The fuel saver, known as Vent-O-Matic, is an automatic damper which can be attached in the flue of a gas furnace. It has been approved by the Canadian Gas Association, which tested the device and found it safe.

But the AGA, after four years of stalling, still hasn't even started the testing. As a practical matter, no gas furnace fixture can be marketed and installed until it has been tested and approved by the AGA, because contractors won't use it.

The AGA, of course, is formed by the gas industry which would like to increase, not decrease, the homeowners' gas bills. The association was hardly enthusiastic, therefore, about the Vent-O-Matic fuel saver when it was submitted for testing back in 1968.

Routine tests were run on three basic types of furnaces. The damper was found to be safe and the proper certificates were issued. But AGA withheld general approval on the grounds that no specific standards existed for the Vent-O-Matic device and offered to test it on any furnace submitted. But the purchase price of all the types of furnaces in use would have cost several million dollars. The manufacturer asked that standards be drawn up instead.

The matter was turned over to AGA's approval committee, known as Z21. Finally, in 1971, the committee got around to authorizing a task force to test the Vent-O-Matic damper and write the standards. But a year later, no task force had been established. Last April, the Z21 committee reauthorized the task force. But still nothing has happened.

The AGA claims it can't get anyone to chair the task force. But the association refused to tell us who had turned down the chairmanship and how many people have been approached. My reporter Ken Fisher could locate only two people who had been offered the job. One was a California gas company official who said he declined because his company couldn't benefit from the device. The other, a Boston fire protection official, said he lacked the expertise.

After spending weeks talking to dozens of people familiar with the facts, we have concluded that the AGA is deliberately stalling. An AGA spokesman explained that it takes time to test a new device to make sure it is safe. But the AGA hasn't even set up a testing committee to begin the tests.

Homeowners, meanwhile, continue to pay for gas that the device could save.

Exhibit 9

CITY OF MEMPHIS,
Memphis, Tenn., January 7, 1970.

Subject: Use of Vent-O-Matic draft control.

Mr. CHARLES WOOLFOLK,
*Vice President,
Save Fuel Corp.,
Memphis, Tenn.*

DEAR MR. WOOLFOLK: Installation of Vent-O-Matic draft control, manufactured by Save Fuel Corporation, Tunica, Mississippi, is hereby accepted, in accordance with its certification by American Gas Association. The installation of Vent-O-Matic is to be in strict accordance with manufacturer's recommendations and complying with the City of Memphis Gas Ordinance.

On future installations, we will continue to run safety inspections similar to the recent tests that Vent-O-Matic was subjected to. In the latter case, they were found to be safe when installed in accordance with the above acceptance.

To further state, a registered gas fitter must make all connections pertaining to this installation, a gas permit must be obtained, a gas inspection made, and an approval certificate issued through this department as required by code.

Mr. Woolfolk, we wish to thank you for your concern for having safe appliances to install. This statement is prompted after reading the certifications, acceptances and data you obtained from testing agencies.

I wish to inform you that this is not a blanket or overall acceptance. Each installation will be accepted as a single unit under individual application.

This acceptance not to be used for advertisement.

Very truly yours,

FRANK J. THORN,
Chief Gas Inspector.

Exhibit 10

LG&W APPROVES DEVICE SAID TO LOWER GAS BILL

(By Orville Hancock)

An automatic damper that fits into a gas furnace flue and is said to cut fuel consumption, thus saving on gas bills, has been tested, approved and deemed "completely safe" by Memphis Light, Gas & Water Division.

Besides the safety factor, it is simple, easy to install and saves up to 37 per cent on gas consumption, say its manufacturers.

Yet its manufacturers who are Mid-Southerners also say:

The damper is still in only limited service—only 2,000 to 3,000 installed—despite being ready for the market for six years.

“At least 21 million flues could use the damper.”

“Stalling tactics” within the American Gas Association (AGA) are responsible for this limited adoption.

Testing agencies claim that in addition to money savings the damper prolongs furnace life.

The device, called Vent-O-Matic, is manufactured by Save-Fuel Corp., whose factory was at Tunica, Miss., but moved last week to Mason, Tenn., about 25 miles northeast of Memphis because of a better labor situation, manufacturers said.

Vent-O-Matic and Save-Fuel started in Vilonia, Ark., when brothers Charles and Bill Deal created the original invention. Then brothers Charles and Ellis Woolfolk bought the Deals' patent, developed it and built the Tunica factory. Ellis Woolfolk, Save-Fuel's board chairman, is a landowner in Tunica County, has extensive business interests in Tunica and is on the board of Union Planters National Bank of Memphis. He says:

“There is no danger at all in use of the damper. It is electrically interlocked with the thermostat. The furnace cannot come on 'til the vent is open, and it shuts off when the damper closes the vent.”

Besides LG&W, recognized testing institutions elsewhere including Mississippi State University have pronounced the device safe and a fuel-saver.

After getting these certifications, Vent-O-Matic started, setting up dealerships. The first in Memphis is Energy Control Co., 3595 Regal. There are distributors in the Northwest and in New England.

Charles Woolfolk of 4526 Chickasaw in Memphis, Save-Fuel's vice president, said today:

“We have facilities for having the damper installed. It will cost somewhere in the neighborhood of \$100, depending on the vent's size. It costs less for smaller vents.”

The cause of the delay in Vent-O-Matic's widespread adoption, says Woolfolk, is the lack of written standards approved by the AGA. Contractors balk at installation without such standards. Pressured for action after six years, an AGA subcommittee which writes standards met Tuesday in Cleveland, Ohio, and suggested the main safety standards.

But Woolfolk said this could bring more delays. Ralph Sparkman, assistant engineer in the LG&W gas division who was named to the subcommittee, explained how, saying:

“The information gathered Tuesday will be correlated and sent to various committees for study. Then the information will be sent out into the industry for comment. When it comes back, the comments will be studied and other safety standards may be suggested. If not, the suggestions will be sent to the main committee on standards for approval.”

Charles Woolfolk, who was invited to sit in with the subcommittee, expressed disappointment at all these possibilities for further delay. He said he believes the subcommittee “is going to try to defeat us with its delays and impossible demands. The backup safety devices they suggest are so many and so expensive that it would be most difficult to comply.

“The devices suggested are not needed. We have built a simple and safe device. Tests have proved that.

“Furthermore, we have built a damper for private homes and not for large industries. The devices suggested by the subcommittee are meant to include industry also.”

Woolfolk said Vent-O-Matic has asked the AGA for a “position letter”—something it has given manufacturers of other devices and something whereby AGA could certify that it has tested Vent-O-Matic and called it safe. AGA's position is that it is awaiting written standards before final approval, said Woolfolk.

AGA informed Woolfolk its certification is not necessary, the Memphian said. But he emphasized that this means that Vent-O-Matic must go to individual utility companies for approval. Each company tests before it decides.

Woolfolk said that with an AGA position letter certifying that “the damper has been tested and found safe, we could simply go to a utility company and have our damper accepted.”

"There's a nationwide gas shortage, yet they continue to delay," Woolfolk said.

On the one hand, he said, gas company owners complain of gas shortages and on the other fight a damper which would conserve fuel. He emphasized:

"Some people have refused to serve on the subcommittee because they felt it wouldn't help the gas company owners. They are interested in selling more gas, not less. Yet they yelp about a gas shortage."

The percentage of savings with Vent-O-Matic varies according to type of furnace, say LG&W officials. The device is best used in central heating. Least savings—8 to 12 per cent—come with attic furnaces. Other furnace types show savings of from 20 to 37 per cent, said LG&W's George Watts, administrative assistant for customer service who supervised most of the LG&W testing.

Of the device's side benefits, Watts said:

"Tests reveal that the life of the furnace is prolonged from 50 to 60 per cent with use of the damper. The device also protects the furnace from metal fatigue and sweating."

The head of the LG&W gas division, Neumon Taylor, summarized:

"LG&W is all for the damper. We know it is fully tested and ready for use and that it is completely safe."

Exhibit 11

SAVE 19 TO 30 PERCENT ON GAS HEAT BILLS—VENT-O-MATIC AUTOMATIC DAMPER

HERE'S HOW THE VENT-O-MATIC SLASHES HEAT BILLS

The Vent-O-Matic Automatic Damper opens and closes—at the proper time—to significantly reduce the amount of gas needed for heating your home.

When the thermostat calls for more heat, the FAIL-SAFE Vent-O-Matic damper opens and allows the burner to ignite. After satisfying the thermostat, the burner turns off and the Vent-O-Matic closes.

Keeps warm air inside to circulate throughout your home. This means your gas furnace does not operate as often . . . or as long. The result: a more comfortable home. Less wear on the furnace. Gas savings from 19 to 30% by actual tests.

UTILITY TESTED. ACCEPTED BY THE CITY OF MEMPHIS

Vent-O-Matic Automatic Dampers have undergone rigorous test by utility companies and gas association laboratories. More important, the Vent-O-Matic has been tested in apartments and homes in the Memphis area. The results show gas savings of from 19.1% to as high as 37.9%. (These tests are available on request.)

COOLING BONUS

In addition to gas heating savings, the Vent-O-Matic can cut costs on air conditioning bills too. As much as 10 to 20% by actual tests. During warm weather, the Vent-O-Matic remains in the closed position. This keeps hot, humid air from coming down the chimney to mix with cooled air. Your air conditioner does not have to work as long. The result: A cooler home at less cost.

VENT-O-MATIC SAVES FOR EVERYONE

Homeowners save on gas bills. Utility companies conserve gas that can attract new industry to the community. Environmentalist like the way it fights pollution. Everyone saves with a Vent-O-Matic.

Exhibit 12

MEMPHIS LIGHT, GAS AND WATER DIVISION,

June 23, 1971.

Mr. CHARLES E. WOOLFOLK,
Vice President, Save Fuel Corp.
Memphis, Tenn.

DEAR MR. WOOLFOLK: I have reviewed the results of the tests, made from the installation of some of the Save Fuel dampers, installed on customers in Memphis. It was quite interesting to note the savings involved.

In these days, when we are all thinking about ecology, and saving on our natural resources, I think that it is a great idea, if we can come up with something that will save on our fuel, particularly, in gas. The figures in this test reveal that there are some very fine savings to be found by the installation of your damper.

Sincerely yours,

R. W. VAUGHN,
Customers Relations Manager.

Mr. RAY. Thank you, Mr. Woolfolk.

The subcommittee understands that you also presented your allegations against AGA to the Federal Trade Commission. Is that correct?

Mr. WOOLFOLK. That is true.

Mr. RAY. What action did the Commission take?

Mr. WOOLFOLK. At first, I really thought that the FTC was going to do a pretty good job. They made several trips to Memphis. And I gave them quite a bit of information, but then I heard that actually the FTC laws do not apply to nonprofit organizations. This, I cannot understand, because, of course, AGA is a nonprofit organization, but an organization such as that, that has such a tremendous control over such a tremendous amount of sales, why doesn't the law apply? I'm not a lawyer, so I can't answer that question.

Mr. RAY. Is Nationwide Testing Laboratory considered a national recognized laboratory?

Mr. WOOLFOLK. Nationwide formerly was U.S. Testing Laboratory and I believe it changed its name to Nationwide. At the time that we utilized Nationwide I had a good contact there with one of the vice presidents because they were doing a lot of soil testing for us.

I don't think that they are an approved laboratory in the same respect that AGA or UL is considered a nationwide-approved laboratory. I would say no, in this instance.

Mr. RAY. When did you first learn that AGA would only certify your device as original equipment and not as an accessory, and when did they inform you that you would have to have a standard promulgated before you could have it tested and certified as an accessory?

Mr. WOOLFOLK. Well, that was the latter part of 1968. In other words, as I mentioned in my statement, I did release to the trade journals that the unit was certified by AGA, because I thought it was. Then I was told by AGA that it was certified as an integral part of the furnace.

Mr. RAY. So in 1968, you learned that you needed a standard?

Mr. WOOLFOLK. Yes. They told me that actually they could not certify it until such a standard was written. When they told me that, I said, "Well, let's write standards."

Mr. RAY. OK. By my count, that was 8 years ago.

Mr. WOOLFOLK. Yes, sir, approximately 8 years.

Mr. RAY. Have any standards been promulgated for an accessory or otherwise?

Mr. WOOLFOLK. Not any approved standards. Now, the task force a couple of years ago did spend a year writing standards—I think maybe I skipped over it, but it was sent out to the 41-member committee. The returns on the standards were originally 33 for, 7 against, and 1 abstaining.

Mr. RAY. OK. I understand that. You pointed that out in your testimony. Do you know how long, on the average, it takes to promulgate a standard?

Mr. WOOLFOLK. From what I have learned about standards, it depends entirely on who is asking for them. Now, I recall one instance, and I believe I am correct in this, where the State of California approved one of these lighters for furnaces, automatic lighters you know, electrical spark lighters. Up until this time, this it had been felt was extremely dangerous, particularly by AGA, but when the State of California approved it, AGA took about 2 or 3 months maybe. They had standards; they were in a position to go ahead and test it. And I think it depends on whose back needs to be scratched, as to how fast the scratching is done.

Mr. RAY. Well, you don't mean to suggest that the State of California needs its back scratched; do you?

Mr. WOOLFOLK. No, I don't. I think this; I think that so far as this electric spark lighter was concerned, AGA was scratching their own back when they wrote standards for it, because it meant that they could then test these and receive a fee for testing these lighters as well—it wasn't the State of California. California was going to get them tested somewhere else with a private laboratory probably.

Mr. RAY. I see. In other words, what you're saying is that AGA then promulgated a standard, because otherwise it would have lost the testing of those products.

Mr. WOOLFOLK. Correct.

Mr. RAY. If the furnace manufacturers and the utilities on the Z-21 Committee were against the retro unit, why did the Z-21 Committee set up this task force to develop a standard for accessories?

Mr. WOOLFOLK. That is something that I cannot understand unless it was a stalling process. They just wanted us to keep hanging in the air, which they did very well, I must admit, but it does seem to me that if they were not interested in writing standards, then why did they go to all the trouble of having a task force draw up such standards, and then have them refused?

Mr. RAY. Certainly, you would agree that if your device was installed in a furnace and the furnace came on and the damper plate failed to open, it would present a dangerous situation, would it not?

Mr. WOOLFOLK. If it failed to open, it certainly would. But we have about 5,000 of these out in the marketplace. We have had absolutely no trouble at all with them. We give a 10-year guarantee which we have honored all this time.

I would be foolish to say that it's impossible for this not to come open and the gas valve to go on. AGA tested it as an integral part of the furnace; Canadian Gas Association tested it; and we have had field testing which I think has been quite substantial.

Mr. RAY. Well, the subcommittee mailed approximately 30 questionnaires to owners of Vent-O-Matic and we received 24 replies. In the main, the replies were favorable to your device.

We did receive two negative replies; Mr. Larry Riggins, of 2400 52 West Mountlake Terrace, Washington State, responded to our question, "In terms of safety, has the Vent-O-Matic functioned properly?" by stating this:

"It failed to open four times, which would result in no heat. I recently had the damper disconnected and wired open."

What is your response to Mr. Riggins?

Mr. WOOLFOLK. Well, actually, I think when you read his reply, he's just answered the question you just asked me, because the furnace will not go on if the damper is not open. And that is one of our fail-safe devices.

Mr. RAY. So you are saying the device actually functioned properly?

Mr. WOOLFOLK. Yes; now, there may have been something else that was wrong with this device and for that reason, well, when you have a new product, you've got to work some bugs out of it. And we think we've worked the bugs out of that. That may have been one of the times when we did not, but I think it's in good working order now.

Mr. RAY. The subcommittee's questionnaire also asked the question: "Do you have any other comments, negative or positive, about Vent-O-Matic?"

Mr. Riggins replied: "With a slow opening and closing valve, the exhaust products from time of Vent-O-Matic closing to time of valve closing back out draft diverter and cause combustion odor and steams up the windows. Vent-O-Matic should only be used with furnaces using a fast-acting valve."

What is your response to Mr. Riggins' statement?

Mr. WOOLFOLK. Actually, we improved the device after that. At first, it was completely sealed around the ring here on this device. At the present time we have only little cushions, just about a quarter of an inch wide, which are enough to soften the noise but yet give us space so that any additional products of combustion could go out if it was a slow-closing valve.

Now, we have tested slow-closing valves. In fact, our first tests that were run in Memphis were slow-closing valves. And we put these little dots to see whether they let carbon monoxide in the rooms. And they never changed color at all. This was done by Memphis Light, Gas and Water.

Mr. RAY. Exactly what reason did the Z-21 Committee give for not approving automatic dampers as an accessory?

Mr. WOOLFOLK. Actually, the reason, as I understood it, that they gave was the fact that it could not be installed properly by a heating contractor. It could not be installed in the field.

Mr. RAY. Obviously, you do not agree.

Mr. WOOLFOLK. Well, I would say this, that they have so many things that are much more dangerous than the Vent-O-Matic that are allowed to be installed in the field. No, I do not agree with it.

Mr. RAY. How did you plan to market this product? Did you plan to sell it over the counter at Sears, Roebuck?

Mr. WOOLFOLK. No; that very question was asked us by AGA many times and we told them that our entire marketing procedure would be to market it through knowledgeable people of the heating industry, heating contractors, in other words.

Mr. RAY. How many furnaces are there in the United States that could be fitted with the Vent-O-Matic?

Mr. WOOLFOLK. Let me look right here—the latest figures that I have, really, are the census figures for 1970. I don't know whether I

can find it, but maybe I can quote it from memory—there were about 36 million homes in 1970 for natural gas and 3.8 million for LPG.

Mr. RAY. Does that figure include basement furnaces?

Mr. WOOLFOLK. Yes, that includes all furnaces.

Mr. RAY. Now, how much would a Vent-O-Matic cost a homeowner, including installation?

Mr. WOOLFOLK. We figured about \$125.

Mr. RAY. \$125?

Senator ABOUREZK. Does that include labor and everything?

Mr. WOOLFOLK. That includes everything, Senator, yes. We figured the price of the Vent-O-Matic at under \$100 and say a \$25 maximum for installation charges.

Mr. RAY. Most people that the subcommittee have interviewed point out that when your furnace is located in the basement, you are only going to get about a 5- or 6-percent savings by installing a Vent-O-Matic. Do you feel that the savings to be realized on a basement furnace could justify the homeowner investing \$125?

Mr. WOOLFOLK. When you consider everything, yes, I do. I certainly do, because even taking the figures that you have given to me, now, I won't go along that this will only save 5 or 6 percent, because we feel even in the basement it will save more than that.

Our metal unit, when it was tested by Nationwide Consumers Laboratory they stated that it saved 10.1 percent but considering the figures and considering the increase in the life of your furnace, the necessity, it is necessary to make fewer repairs. And let's speak of another—air conditioning today is becoming common, everyone has it, and it's almost incorporated with every furnace. We also save on air conditioning. Now, actually, we don't talk too much about saving on air conditioning, but nevertheless, the test which Memphis Light, Gas, & Water ran in Memphis on a Collierville home showed in kilowatt-hours the Vent-O-Matic saved 20.1 percent on kilowatt-hours during that 6 month period. When you add all of those things together, then I think the savings would be worthwhile.

Mr. RAY. You state that you are convinced that until the Federal Government takes steps to clean up the invisible corruption that exists in this activity, we will not have a free and open market.

First, exactly what do you mean by the term "invisible corruption" and, second, what action do you suggest the Federal Government take?

Mr. WOOLFOLK. Well, I think the story that I have told in my prepared statement demonstrates very appropriately the invisible corruption that has been had. So far as the steps that I would take, I have mentioned those throughout, and No. 1 would be Government oversight. I do think that the Government does need to come in and take a hand. The standard-setting groups and testing organizations—they should publish rules and procedures so that actually you'll know what you're going by, and then after you have tested it, there would be a right to appeal those decisions.

And then again that all interested persons be given a chance to participate in the standards-development process; that standards be reasonable, and not unnecessarily stringent; and that standardization or certifications are consistent with our free enterprise system. Those are the things that I think I have enumerated in this prepared statement of mine. And those are the things that I think the Govern-

ment and only the Government can step in and really lend a hand in doing a creditable job.

Mr. RAY. Thank you.

Senator ABOUREZK. Mr. Woolfolk, just to kind of summarize everything that you have tried to say this morning. You have an invention that you own that is proven to save on fuel, natural gas in this case. Is that correct?

Mr. WOOLFOLK. That is correct, yes, sir.

Senator ABOUREZK. It also has been proven that it is very safe to install on home furnaces.

Mr. WOOLFOLK. Yes, sir. To my belief, it has been proven. So far as your nationally recognized laboratories are concerned, well, they say, "No."

Senator ABOUREZK. They say it's not safe to install it?

Mr. WOOLFOLK. That's what they say.

Senator ABOUREZK. If you have already done this, will you go over once again why they say it's not safe to install it?

Mr. WOOLFOLK. Well, I think what they are considering is that the homeowner would buy one off the shelf. And we went into—while you were out of the room—the marketing procedure that they had asked me about many times. This should be marketed through a knowledgeable concern, a heating contractor that knows his business, because the Vent-O-Matic is really no more dangerous to install on a furnace than going out and putting a gas valve on the furnace. If neither one of them are put in right, well, something could happen.

Senator ABOUREZK. Well, has the American Gas Association ever established what we would call affirmative standards? Have they said this device can be installed by anybody who is qualified to install gas appliances?

Mr. WOOLFOLK. They have only said that it could be installed as an integral part of a furnace. So, consequently, with 800 furnaces, furnace marketers or manufacturers, I assume—there used to be 800 of them; I don't know how many there are now—we would have to send this through AGA and have the same test made on all 800 furnaces at least three times, because they all make three different types of furnaces. Every furnace has to adhere to the same standards. If they approved it as an integral part of one furnace, why not approve it as an integral part of all of them since all furnaces are tested under the same standards.

Senator ABOUREZK. To go back just a bit, they have said that it could be installed on new furnaces or on existing furnaces?

Mr. WOOLFOLK. They talked about it being installed on new furnaces only.

Senator ABOUREZK. Have they ever talked about it being installed on existing furnaces?

Mr. WOOLFOLK. No, sir. As a retrofit.

Senator ABOUREZK. OK. Now, because the American Gas Association has never given its seal of approval for that kind of installation on existing furnaces, the marketing of this product amongst the general consuming public is thwarted. Is that true?

Mr. WOOLFOLK. Yes; because it's practically impossible to get approval in each locality individually and that is what you would have

to do. As I said earlier, the codes that each individual area has, these codes require that all appliances or apparatuses have the AGA seal or the UL seal. If they do have it, then they are automatically approved by that code. If they do not have it, then you have a procedure that you have to go through in order to get it approved for that particular locality.

Senator ABOUREZK. Now, because the American Gas Association has not given its seal of approval, the marketing of this invention has been thwarted. Do we agree on that?

Mr. WOOLFOLK. That's right. Yes, sir.

Senator ABOUREZK. And because it is a fuel-saving device and because they have thwarted its marketing by virtue of refusing to give their approval, I can only conclude that the American Gas Association is not interested in saving fuel. Would you agree or disagree with that conclusion?

Mr. WOOLFOLK. When I look at my experience, I agree that they are not interested in saving fuel. When I read the magazine articles and see the advertisements and the thousands upon thousands of dollars they spent—"We Want to Save Energy"—signed American Gas Association, it seems like to me that they are blowing hot and cold at the same time.

Senator ABOUREZK. Well, it does. Obviously, they can make any self-serving statement they want in their advertising until something happens that prevents them from doing that kind of thing. It's their actions that really govern, not just what they say. Would you agree with that?

Mr. WOOLFOLK. Well, as far as their actions are concerned, I think that they certainly do not want to save gas, because here is a unit that would conserve. If we converted it into barrels of oil—and considering that this saves 20 percent and if you could wave a magic wand and put it on all the homes that this could be put on right away—and could convert the Btu's in 1,000 cubic feet of gas to a barrel of oil, it would amount to approximately half a million barrels of oil per day that it would save this country.

Senator ABOUREZK. Well, I think the oil and gas industry have established themselves as not being much interested in anything except what is in their own interest and their own benefit, and I think that you have once again proved that.

One more question—when does your patent run out?

Mr. WOOLFOLK. We had 17 years on our patent and I think we have got about 12 years to go, Senator. I have the patent in the back of this book here.

Senator ABOUREZK. Well, I think patents run for 28 years and you can apply for an extension, if I am not mistaken. Can you do that?

Mr. WOOLFOLK. I do not know.

Senator ABOUREZK. Does anyone here know the specific patent law? Is it a 28-year period?

Mr. WOOLFOLK. It is a 17 year period.

Senator ABOUREZK. And, how long have you gone on your patent?

Mr. WOOLFOLK. About 5 years.

Senator ABOUREZK. So, you have 12 years to go.

Mr. WOOLFOLK. I've got about 12 to go.

Senator ABOUREZK. All right, I was thinking of copyright, I guess.

Mr. WOOLFOLK. Yes, sir.

Senator ABOUREZK. OK. Do you have any questions, Mr. Chumbris?

Mr. CHUMBRIS. Just one. You mentioned, UL, Underwriters Laboratories.

Mr. WOOLFOLK. Yes, sir.

Mr. CHUMBRIS. Did you have your product tested by the Underwriters Laboratories?

Mr. WOOLFOLK. No, sir, we did not, we went to American Gas Association first. We were thinking along the lines of an oil device, which would have to withstand 1100 degrees temperature.

We went to UL with that, and also talked about the gas device. They said, "Well, you've already been to AGA. Continue with them." And, they showed very little interest in it. I guess they would have tested it if we had paid them enough money.

Mr. CHUMBRIS. There were a couple of other questions, but they were covered in the colloquy with Mr. Ray. So, I won't bother to ask those questions again.

Mr. WOOLFOLK. Yes, sir.

Mr. CHUMBRIS. Thank you very much.

Senator ABOUREZK. Mr. Woolfolk, I want to express my thanks to you for an excellent statement and for your willingness to come up here and respond to the questions by the subcommittee.

Mr. WOOLFOLK. It has been my pleasure, sir.

Senator ABOUREZK. Thank you.

Mr. CHUMBRIS. Mr. Chairman, Senator Thurmond has some written questions to be given to the witness, Mr. Woolfolk, and asks he respond in writing.¹

Senator ABOUREZK. All right, we will give those questions to him, then.

The next witness is, actually, a panel, consisting of Mr. J. E. Heeley and Mr. H. Wank of the Canadian Gas Association of Toronto, Canada. Gentlemen, we'd like to welcome you to our subcommittee hearings. We are looking forward to hearing your testimony.

Mr. CHUMBRIS. Since they are such close neighbors to you, Mr. Chairman, I'd give them an extra welcome.

Senator ABOUREZK. That is right. Well, we are always afraid in South Dakota of an invasion from Canada. So, anything we can do to improve our relations, we are happy to do that. If you are ready, please proceed.

STATEMENT OF H. WANK, DIRECTOR, CANADIAN GAS ASSOCIATION, TORONTO, CANADA, AND VICE PRESIDENT AND GENERAL MANAGER OF THE CANADIAN GAS RESEARCH INSTITUTE; ACCOMPANIED BY J. E. HEELEY, MANAGER OF CERTIFICATION LABORATORY, CANADIAN GAS ASSOCIATION

Mr. WANK. Mr. Chairman, my name is Herb Wank. I am director of approvals of the Canadian Gas Association. I also am vice president and general manager of the Canadian Gas Research Institute, an affiliate of the Canadian Gas Association. Ernie Heeley, on my right,

¹ See p. 695.

is manager of the Certification Laboratory of the Canadian Gas Association.

Mr. Chairman, in view of the fact, that there has been a meeting with your people, and some correspondence, we thought, perhaps, that it would be appropriate to make a brief summary on CGA's activities, and then, answer any questions that you have in regard to the Vent-O-Matic.

Our association is a nonprofit organization, which serves as spokesman for the Canadian gas industry. Its members represent gas producers, transmission and distribution companies, manufacturers of gas equipment, pipeline contractors, service companies and associated organizations.

The function of the association is to provide rapport with the public in all levels of Federal and Provincial Government and the industry.

It also provides information and studies in the areas of accounting, finance, statistics, personnel management, accident prevention, energy conservation and natural gas supply.

The Canadian Gas Association, through its affiliate, The Canadian Gas Research Institute, provides research and development facilities to investigate industry problems, and makes recommendations for improvements, where possible.

Incidentally, it might be of interest to point out, at the present time, one of the projects is the evaluation of energy-saving devices. This includes not only the automatic dampers, but also heat savers, pilot and electric ignition and so forth.

Within the framework of the association, the Approvals Managing Committee directs the operation of the Certification Laboratory, Inspections and Standards-Writing Department.

We sponsor some 85 standards, which are funded by distribution utilities, as well as by the sale of standards and some financial support from the Standards Council of Canada.

Concerned sectors of the industry, Provincial authorities, manufacturers and consumer interests make up the membership on our standards committees.

With the formation of the Standards Council of Canada, a few years ago, the CGA became an accredited national standards-writing organization for gas-burning equipment.

In 1960, the Interprovincial Gas Advisory Council, made up of the chief gas inspectors of each of the Provinces in Canada and the Territories, was set up to provide a forum to discuss and formulate policies for national certification and standards-writing programs.

While most of our certification activities are carried out in accordance with approved standards, by agreement with the Interprovincial Gas Advisory Council, we can certify gas-fired equipment and accessories, for which there is no authorized standard.

In such cases, the equipment and all data is reviewed by the staff, and with input by the manufacturer and/or interested party, a laboratory test program is set up to evaluate the performance, construction, and safety aspects of the equipment.

Upon compliance, a special test report is issued and sent out to the chief gas inspectors for ballot approval. If a majority approval is obtained, then, CGA certifies the equipment.

It was in this manner, that the Vent-O-Matic automatic damper, manufactured by Save-Fuel Corp., was certified. However, at the next meeting of the Interprovincial Gas Advisory Council, held on May 31, 1971, the chief gas inspectors reconsidered the matter and voted to rescind the approval.

The decision was based on the fact that no unnecessary device should be placed in the venting system to cause a potential obstruction of the flow of flue gases.

In view of the fact that each provincial chief gas inspector has the authority to ban the sale of all gas equipment, the manufacturer of Vent-O-Matic was advised that CGA would no longer certify the damper.

Mr. Chairman, I think, from our standpoint, if there are any questions on how our standards are promulgated, if there are any questions on the Vent-O-Matic, myself or Ernie Heeley would be pleased to answer them.

Senator ABOUREZK. Thank you. Now, are voluntary industrial standards development activities in Canada financed strictly by the private sector, or is it a joint undertaking by private industry and government?

Mr. WANK. The private sector pays a considerable amount towards the development of voluntary standards. The Federal and Provincial Government are involved. There are the committees and all the participants, whether government, consumer interest, manufacturer, or gas industry people—all contribute free time to the writing of our standards—the majority cost is paid for by the industry.

Senator ABOUREZK. By private gas interests. But can you give us a percentage breakdown of how much the private gas industry pays for these standards-development activities and how much the government pays?

Mr. WANK. In the past year, Mr. Chairman, our standards-writing costs for the Canadian Gas Association were in the order of \$140,000 and, of that, the gas industry contributed approximately \$100,000. The rest came from the sale of standards, which is a minimal amount, the Standards Council of Canada, and some Provincial contributions.

Senator ABOUREZK. Do you know how much the Provincial and the Federal Government contributions were of that \$140,000?

Mr. WANK. I would say around \$30,000, Mr. Chairman.

Senator ABOUREZK. O.K. So \$100,000 from private industry, \$30,000 from the Government, and \$10,000 from the sale of standards, is that correct?

Mr. WANK. This would be approximate.

Senator ABOUREZK. Did standards exist for automatic dampers when Save-Fuel presented its device for testing?

Mr. WANK. No, sir; and there still is not a standard for an automatic flue damper.

Senator ABOUREZK. All right. But yet, when there were no standards, the Canadian Gas Association did test the Vent-O-Matic as an accessory; that is true, is it not?

Mr. WANK. Yes, it is, Mr. Chairman.

Senator ABOUREZK. All right. Am I to assume that you have a procedure for testing products not covered by an existing standard?

Mr. WANK. Yes.

Senator ABOUREZK. Exactly what kind of test did CGA conduct on the Vent-O-Matic?

Mr. HEELEY. Basically, in discussion with Save-Fuel we set out test criteria to first of all determine if there were adverse effects by placing the automatic damper on a furnace that had already passed the furnace standards.

We then checked to be sure, since it was an electrically operated unit, that it passed the standards for electrical equipment. We cycled it 10,000 times at room temperature and 100,000 times at a higher temperature. That basically is what we did.

Senator ABOUREZK. That was really a safety test, was it not?

Mr. HEELEY. Yes, it was. We did not attempt to evaluate any efficiencies in it at all.

Senator ABOUREZK. And did you find that the Vent-O-Matic was a safe device at that time?

Mr. HEELEY. It passed these tests, yes.

Senator ABOUREZK. I assume you did not conduct any test regarding its ability to conserve fuel?

Mr. HEELEY. We did not.

Senator ABOUREZK. Of course, you were not necessarily concerned with the energy savings claims of the manufacturer; is that true?

Mr. HEELEY. In these cases, our test by report procedure is strictly safety. We never get into the performance under these procedures.

Senator ABOUREZK. Then we are to assume, from your testing, you were satisfied the device would operate safely and could be installed safely in the field, is that correct?

Mr. HEELEY. We recommended to the Interprovincial Gas Advisory Council by the tests results we had that it was safe. We recommended it to them.

Senator ABOUREZK. And that it could be installed safely in the field. Was that part of your results?

Mr. HEELEY. No, that is not a specific part of the results. We just said it was a safe appliance and we did review the installation procedures outlined by Save-Fuel as part of the recommendation.

Senator ABOUREZK. So, as part of the testing, it was assumed by CGA that the device would be installed in the field. If you gave it an overall safety recommendation, that included installation in the field, did it not?

Mr. HEELEY. Well, we should divide one thing—we test only the device. We have no jurisdiction in installation, although, obviously, you get involved in what is the manufacturer's instructions. We followed those.

Senator ABOUREZK. Did CGA authorize the use of its listed symbol on the Vent-O-Matic device?

Mr. HEELEY. Yes, we did.

Senator ABOUREZK. Your approval was later withdrawn. I think Mr. Wank has testified to that. Is that correct?

Mr. HEELEY. That is correct, yes.

Senator ABOUREZK. Would you explain in a little more detail why you withdrew the approval?

Mr. HEELEY. Well, since it relies on the authority of the Provincial inspectors for installation of equipment in the field, and they had

withdrawn their authority, there did not seem to be any sense continuing, so we did not. We advised the manufacturer—

Senator ABOUREZK. Say that again.

Mr. HEELEY. Since the authorities have jurisdiction you require their authorization to install all gas equipment and since they had withdrawn that authority for the Vent-O-Matic device it could not be installed.

Senator ABOUREZK. The gas inspectors had withdrawn their authority?

Mr. HEELEY. Yes. Well, the chief gas inspectors are part of this advisory council and it works down in that way in Canada. I do not know whether I am explaining this or not, maybe Herb can do a little better job than I can do.

Mr. WANK. Mr. Chairman, it does not matter which certifying organization certifies a piece of equipment, or lists it. In Canada, unless certification has the approval of the authority having jurisdiction and as far as gas equipment, the chief gas inspector in each Province has jurisdiction and can ban the sale of any particular piece of equipment or accessory that they, for some reason, consider hazardous or unsafe or for whatever reason they decide not to allow its installation in the field.

When we certify equipment, we certify it to a specific standard or standards or by special test report, and then it must conform in the installation to the installation code, which is the responsibility of each of the individual Provinces.

Senator ABOUREZK. Well, I guess what I am trying to get at is that you withdrew your certification of the device based on something other than the actual safety of the device itself?

Mr. WANK. Well, at the Interprovincial Gas Advisory Council meeting, which meets at least once a year and more, they formulate policy, and they give direction to the certifying laboratories and, at that particular meeting, they reconsidered their earlier decision, by ballot, and it rescinded. And when they withdrew their approval of that report, we did not have any standard that we could actually test an automatic damper to. Therefore, we necessarily had to lift our certification.

Senator ABOUREZK. Did the Council give a reason for withdrawing its approval?

Mr. WANK. Yes.

Senator ABOUREZK. What was that?

Mr. WANK. The Council stated that they did not believe that any unnecessary obstruction should be placed in the flueway. Actually, we have part of the minutes—

Mr. HEELEY. I could read out the actual minutes, if that is of any interest to you.

Senator ABOUREZK. Would it be very long?

Mr. HEELEY. No, it is quite short.

Senator ABOUREZK. Go ahead and read it.

Mr. HEELEY. It is minute No. 16-A, automatic damper for forced air furnaces.

A device which is described, which has been certified by a CGA, on the basis of majority acceptance of a special report by IGAC members, to be placed in the vent connector of a furnace, which closes, when the burners are off, and

prevents residual heat in the furnace from going into the chimney. It was felt that such a device should not be put in the vent despite a number of safeguards. It was put forth in discussion that the draft inducers are permitted in high input vents and that this particular device was at least high input vents and that this particular device was at least as reliable as the furnace with which it was installed.

Council instructed that the device was not acceptable on the basis that no unnecessary device should be allowed in the venting system.

Senator ABOUREZK. Then, according to the minutes, the withdrawal of approval by the Council had nothing to do with the safety of the device itself; would that be an accurate statement?

Mr. WANK. That is correct. There was no incident that made them reconsider their decision. It was a reconsideration of the facts, Mr. Chairman.

I might point out one other point in our standards-writing procedures. We at the Canadian Gas Association who sponsor standards-writing, do not prepare a standard unless we are authorized to do so by the Interprovincial Gas Advisory Council.

Senator ABOUREZK. Did they authorize you to prepare a standard for this particular device?

Mr. WANK. We would not even call it a standard. It was a lab testing requirement specially balloted with each individual piece of equipment that would come forth.

Senator ABOUREZK. Now, in your opinion, is it any more difficult or more dangerous to install a vent damper in the field than it is to install, say, the combustion chamber of a furnace?

Mr. WANK. Mr. Chairman, I guess we are getting into opinion. I think there is maybe more complications with installing something that has electrical power and must be connected into the control system making sure that it is compatible with existing controls, and so forth. Whereas, a combustion chamber is strictly a mechanical replacement connection.

Senator ABOUREZK. Well, but you did approve the Vent-O-Matic for such field installation. How do you explain that, if you think it is more difficult and more dangerous?

Mr. WANK. Well, Mr. Chairman, I guess subjective opinions are really not a one-person's individual decision in this case. The decision to go ahead and prepare a report and submit a recommendation was a joint activity. It was not any one individual in the Canadian Gas Association.

When you ask me whether one or the other is more difficult, the combustion chamber or the controls, I am just giving you a subjective opinion and others may challenge it, I agree.

Senator ABOUREZK. Would you say from your own subjective opinion, which is all I can ask for here, that even though it might be more difficult to install a Vent-O-Matic than a combustion chamber, it is still not so difficult or so dangerous that you would not have approved it?

Mr. WANK. A proper qualified man, if he is properly trained, could install it.

Senator ABOUREZK. Now, you have said that the Interprovincial Council withdrew their approval because they did not want any unnecessary obstruction in the Vent-O-Matic. Is that still their position?

Mr. WANK. Yes, Mr. Chairman.

Senator ABOUREZK. It is the subcommittee's understanding that this position is now being reconsidered?

Mr. WANK. Not from the standpoint of the Interprovincial Gas Advisory Council, at least not to my knowledge, unless someone has written directly to Mr. Lines, the chairman of the Interprovincial Gas Advisory Council. However, the only indication that I made is that we are carrying out a research program to see what savings can be achieved with appliances using automatic dampers, heat exchangers, ignition devices, and elimination of pilot.

Senator ABOUREZK. So, it is being reconsidered, then, in an overall context, is that correct?

Mr. WANK. Well, if I sound as if I am hedging, Mr. Chairman, I am being very straightforward, they are actually two completely separate jurisdictions. In fact, we would be very pleased to send you a copy of the research report which comes out, perhaps, early in April. However, when that report is released, regardless of what the findings are, it would still have to go through the normal certification procedure.

The research activity does not have any jurisdiction over the certification activity. They are separate and distinct.

Senator ABOUREZK. I am going to ask Mr. Ray to follow up on that, just briefly. He has some specific knowledge on that.

Mr. RAY. Mr. Heeley, when I visited you last year, as you know, I stopped by and spoke with the inspector in Toronto.

Mr. HEELEY. Yes.

Mr. RAY. And he advised me at that time that there had been some funds set aside and that they were, in fact, reconsidering this matter in light of the gas shortage.

Mr. HEELEY. Yes. This research activity is part and parcel of that.

Mr. WANK. May I comment on that, even though he directed it to Mr. Heeley, Mr. Chairman?

Mr. RAY. Sure, go ahead.

Mr. WANK. The Canadian Gas Research Institute, which is sponsored by the majority of the utilities in Canada and some of the transmission companies, had authorized a research program to look into energy conservation devices. And it so happened that the Ontario government, who are one—incidentally, because there is correspondence—one of the strong objectors to the Vent-O-Matic, also said they would like this matter looked into and to have some actual facts, rather than the feeling of, what will constitute savings, and so forth, and they contributed \$25,000 to the research program.

So, again, I say, the activity that you are referring to is being carried out by the Canadian Gas Research Institute.

Senator ABOUREZK. Now, I realize that CGA did not conduct any tests regarding fuel savings but, in your opinion, do you believe that such a device would cut down on the homeowner's fuel consumption?

Mr. WANK. Mr. Chairman, while I cannot release data until I have been authorized by my managing committee on the research report, there are potential savings to be achieved by having some type of automatic damper in the flue.

However, I will say that we have found some wide differences in the amount of savings that are to be achieved.

Senator ABOUREZK. Is your organization conducting tests at this time on whether or not there can be fuel savings?

Mr. WANK. Yes, in the Canadian Gas Research Institute.

Senator ABOUREZK. Do you know of any tests that have been conducted to determine how much heat loss there is through an open flue? Is that a part of the same program?

Mr. WANK. Yes.

Senator ABOUREZK. And you cannot release that data, yet, either?

Mr. WANK. The report is being prepared, no, I cannot. Not that I wish to withhold information. I will send you a copy of the report. I believe it will be released early in April.

Senator ABOUREZK. We would very much like to have that. I have no more questions.

Mr. CHUMBRIS. Just one. Do you have a working relationship with your counterpart in the United States?

Mr. WANK. Yes, we do. We have a working relationship with AGA; we also have a working relationship with a number of the European and Asian gas industry people through our membership in the International Gas Union.

Mr. CHUMBRIS. The impressions or positions taken by your counterparts in different companies around the world—how much of an impact do they have on the decisions that you may make?

Mr. WANK. Mr. Chairman, that is a rather difficult question to answer. But whenever we have a problem, we try to find out as much as we can how other people are handling these problems, and to come up with the best solution.

Mr. CHUMBRIS. That is all.

Senator ABOUREZK. OK. Well, I would like to express the gratitude of the subcommittee, as well as that of myself, for you coming down here to testify. We are very grateful for it and we want to thank you for the information you have given to the subcommittee, and for your cooperation.

Thank you, both, very much.

Mr. WANK. Thank you.

Mr. HEELEY. Thank you.

Senator ABOUREZK. The next panel consists of Mr. Frank Thorn, Mr. George Watts, and Mr. Neumon Taylor, all of Memphis, Tenn. Mr. Taylor is general manager of Memphis Light, Gas, & Water Division. Gentlemen, I'd like to ask you up to the witness table.

Mr. Thorn, if you are ready, please, proceed.

**PANEL FROM MEMPHIS, TENN., COMPOSED OF FRANK J. THORN,
GEORGE G. WATTS, AND NEUMON TAYLOR**

**STATEMENT OF FRANK J. THORN, RETIRED CHIEF GAS INSPECTOR,
PUBLIC SERVICE DEPARTMENT**

Mr. THORN. Mr. Chairman, my name is Frank J. Thorn, from Memphis, Tenn. For 32 years, I was an employee of the city of

Memphis working in the public service department. In 1972, I retired as chief gas inspector for the city. I appear here today, at the request of this subcommittee to discuss the gas inspection department's work with the Memphis Light, Gas & Water Division to determine if automatic vent dampers could be safely installed on gas-fired furnaces.

I was interviewed last year about my work with automatic dampers by Mr. John Ray. I tried to be as helpful as I could. I appear here today to answer any additional questions that you may have. While I have not prepared a detailed, long statement, I do have a few comments to make.

I am of the opinion that an automatic damper has the capability of saving fuel when installed in a substantial percentage of dwelling units and, because of this, it should be given special consideration.

Certainly, in view of the fact that the Nation is experiencing a fuel shortage, we should pursue all avenues which indicate that they have a real possibility of helping us conserve our shrinking energy supply.

I would like to add that when one considers the various components of furnaces and other products listed and approved for distribution in the marketplace, so to speak, there is no reason why automatic dampers should be singled out as being too dangerous for installation in the field. Frankly, I find this difficult to swallow.

For example, gas valves are certified by AGA and carry their stamp of approval as an accessory. They are sold across the counter and are installed in the field. If a gas valve was installed properly, it could possibly cause an explosion. Does it present a potential danger? The answer seems obvious.

From my work, I am convinced that the automatic damper we tested and inspected in the city of Memphis, can be installed in the field safely. It can be done by requiring that the damper be installed by a licensed, qualified gas installer in accordance with the manufacturer's installation instructions and local jurisdiction requirements, with a certificate of compliance being issued before final acceptance is granted.

Thank you. I am now prepared to answer any questions that the subcommittee may ask.

Senator ABOUREZK. Thank you.

Mr. Watts, you may proceed with your statement?

STATEMENT OF GEORGE G. WATTS, BELLMARK CORP.

Mr. WATTS. Thank you, Mr. Chairman.

I'm George Watts, and I appear here today at the request of this subcommittee to discuss the tests I conducted on the Save-Fuel automatic vent damper, with the Memphis Light, Gas, & Water Division.

I was employed by Memphis Light, Gas & Water for 27 years; I spent 15 years in M.L.G. & W. training and laboratory section, and 4 years as administrative assistant of customer relations. What follows is a summary of the tests I conducted on the Save-Fuel damper, generally referred to as the Vent-O-Matic.

Around July of 1969, Mr. R. W. Vaughn, customer relations manager, Memphis Light, Gas, & Water Division, summoned me to his

office. On arrival at his office, I found several people had been called in to witness a demonstration by Messrs. Charles Woolfolk and Clint Nickles, of a device called Vent-O-Matic, designed for gas-fired vented appliances.

The Vent-O-Matic, an automatic damper, was designed to be placed in the vent of a gas-fired vented appliance. Its purpose was to seal off the vent when the vent was not in use.

Woolfolk and Nickles claimed, and had several reports, that showed the damper would save from 20 percent to 30 percent of homeowner's gas consumption when the damper was installed according to factory recommendations.

After the demonstration, such an innovation caused many comments, mostly good. The engineers were impressed with the design, fabrication and claim of savings. The other people were impressed with the ease of installation and safety of the device. Even at that early date, Mr. Vaughn realized that a shortage of natural and propane gas was imminent, and such a possibility of savings should be investigated.

At that time, I was in charge of Memphis Light, Gas, & Water Division's training program and laboratory. Being familiar with the types of vented appliances, installation, component parts, vents, rules and regulations, Mr. Vaughn assigned me the job of testing the Vent-O-Matic's workability, safety and savings.

I recommended to Mr. Woolfolk and Mr. Nickles that they discuss the automatic damper with the city gas inspector, Mr. Frank Thorn. They were able to get approval from Mr. Thorn to allow several dampers to be installed at various locations in the city for testing.

The gas inspector suggested that a test be conducted on at least six units to determine the amount of savings, safety of the unit, and the operation of the unit for a period of 6 months. These tests were supervised by the inspector selected by Mr. Thorn, Mr. Nelson Vaughn and myself.

Also I should have had in there, Mr. Thorn did personally inspect and check some of these, which I overlooked and left that out.

To test these units, Save-Fuel Corp. selected six townhouses—two houses at separate addresses. These houses were as near alike as possible, and the tenants' living habits were very similar, with the same number of people to a family.

The test units were tested for safety, spillage of combustion products into living areas, operation, effects of added amperage and voltage on the original equipment, and economy. Over a period of 8 months, all tests were proved to meet all the requirements of the city code and rules and regulations of the Memphis Light, Gas, & Water Division.

The test units were also installed on new equipment with a delayed action—delay control valve. The delayed closing was from 15 to 21 seconds. The carbon monoxide monitor did not show a trace of CO over 8 months; the savings found were 19.1 percent to 37.9 percent.

Since these tests did not take into consideration the degree days, we thought it wise to find a house where a damper had been installed at least a year. We found a house in Collierville, Tenn. The engineering Department of Memphis Light, Gas, & Water Division took

the gas consumed for 2 years prior to the Vent-O-Matic installation and computed the amount of gas used per degree day and found the yearly average of the gas used. The same procedure was then followed for the year during which the damper was in use. These years were then compared, and the savings on gas consumption was determined to be 31.7 percent for the year the automatic damper was in use. This unit was examined and found to be in perfect condition, after 1 year of operation. The damper was installed on a furnace with a 7-inch vent. It was located in a hall closet, open to the attic, which was on the second floor of a two-story house.

While testing these units, I found them to operate safely and economically, with no ill effects to any component installed on the heating units by the manufacturer.

From these tests, Mr. Thorn wrote a letter of approval, and I have it here ¹—this should be a “letter of acceptance”—granting the use of the Vent-O-Matic to be installed on heating appliances in the city of Memphis. Each installation would be inspected by this department, and a record would be kept in his office and in the Memphis Light, Gas, & Water Division file. The units installed outside the Memphis city limits and in Shelby County should be inspected by the Memphis Light, Gas, & Water Division. I might say, at this point, that the Shelby County area, outside the city limits, at that time, did not have a gas inspector, other than the Memphis Light, Gas, & Water Division.

In late 1969, I had five automatic dampers installed on heating units in the laboratory and training school. These units were installed to further test the automatic damper and to train the servicemen how to check the unit for proper installation and safety, when found on customer's furnaces.

Training sessions were conducted for the Tennessee Gas Association each year in the lab. Each person that attended our training school was instructed on how to install and service the automatic damper. After the test reports and training session, most of the Memphis Light, Gas, & Water employees were enthused and wanted the unit for their own furnace.

In January 1972, two units were installed on like homes in the Whitehaven area of Memphis. The homes selected had the same type heating unit, the same size vent pipe. The living habits of these homes were very much alike—man and wife of both homes working, returning home each afternoon at approximately the same time. These tests were conducted by a standard recommended by the National Bureau of Standards. As seen in exhibit 1, house A showed 22.6 percent savings, while house B showed 28.1 percent saving. Thermostats were set for 73 degrees day and 70 degrees night. Each furnace was located in a hall utility room, between the living room and the bedrooms. Both utility rooms were open to the attic. Test periods continued exactly 2 weeks; both meters were read near 10 a.m., every other Saturday, and readings were recorded.

With these tests in hand, Mr. Ralph Vaughn presented a program to the board of Memphis Light, Gas, & Water Division. He suggested

¹See exhibit 9, p. 539.

that the division purchase 200 to 400 Vent-O-Matics to sell and install on customer's furnaces. This would give the division a complete record of saving operations and safety of the automatic damper. The board rejected the suggestion. They felt that this position would put the division in competition with the heating contractors.

Thank you.

Senator ABOUREZK. Thank you.

[Mr. Watts read his prepared statement. The following were attachments to his statement. Testimony resumes on p. 562.]



U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234

Exhibit 1

October 26, 1971

Mr. Charles E. Woolfolk
P. O. Box 1077
Tunica, Mississippi 38676

Dear Mr. Woolfolk:

I was not able to concentrate on the matters we discussed with Messrs. Farrar and Wilson on August 24 until the Labor Day weekend arrived -- in part due to the death of my wife's father. However, I can now say that quite simple and practical field observations of the performance of the VENT-O-MATIC appear feasible, that would require astonishingly little effort on your part to obtain the needed data, and should cost little.

In brief, it calls for selection of two reasonably similar houses in preferably the same locality and approximately similar orientation, having flues of equal diameter and elevation above the draft hoods of gas-fired furnaces of approximately similar type. Each should have a VOM of the same type and size installed in your recommended manner, and there should be a means of arranging so that, as called for, the damper can be positively kept from closing the flue when the gas burner is turned off, for selected calendar periods of, say, two weeks (your instructions mention use of a pencil for the purpose).

The procedure then would be to lock open the damper in House A, and leave it operative in House B, at the start of a two-week period, simultaneously reading the house gas meter in each house, as nearly at the same time as possible. Two weeks later, make the VOM in House A operative, and lock open the VOM in B, again reading the house gas meters at that time. Two weeks later, again reverse the operative and lock order of the houses, again reading the gas meters, for as many two-week periods as you desire, preferably covering at least half of the winter season. I believe that useful results will be obtained in two two-week periods of observation, but of course more extensive data and extended observation are desirable.

In any event, you will obtain the following data, identified below:

Period	$\frac{A_o}{f_o}$	$\frac{A_c}{f_c}$	$\frac{E_c}{f_c}$	$\frac{B_o}{f_o}$
1	f_o	--	f_c	--
	e_o	--	E_c	--
	h_o	--	H_c	--
2	--	f_c	--	F_o
	--	e_c	--	E_o
	--	h_c	--	H_o
3	f_o	--	F_c	--
	e_o	--	E_c	--
	h_o	--	H_c	--
4	--	f_c	--	F_o
	--	e_c	--	E_o
	--	h_c	--	H_o

etc.

where A indicates house A, and B house B.

f represents CF of gas used in house A in period

F " " " " " " " B " "

e represents kw-hr. of electricity used in house A in period

E " " " " " " " B " "

h represents hours of burner operation in house A in period

H " " " " " " " B " "

and subscript o indicates VOM locked open during period.

and subscript c indicates VOM operative during period.

Speaking broadly, only the values of f and F are needed, but the values of e, E, h and H can be helpful in analysis in several ways, and I therefore suggest you obtain them also.

The logic behind these data depends on two assumptions -- a) that in the same period of weather, the heat loss of house B is proportional to that of house A, with the VOMs in the same operative or inoperative condition in both houses, and b) that the percentage effect of the operative VOM towards fuel savings in house A is the same as it is in house B. On this

basis, it can be shown that

$$r^2 = \frac{f F}{f_o F_o} \quad \text{and} \quad l^2 = \frac{F F_o}{f f_o}$$

where r is the ratio of fuel use in a given house with an operative VOM to that without it under the same weather conditions, and l is the ratio of heat loss of house B to that of A during the same periods of weather with the VOMs in the same operative or inoperative condition in both houses. Note that the percentage fuel saving due to use of the VOM is given by $100(1-r)$,%. In making these calculations of r and l , the values of f and F are taken from any two periods of observation that contain the four values. They do not have to be successive periods, incidentally -- for example, the data of periods 1 and 4, or of 2 and 3, could be used together, as above.

I am adding below a number of remarks that appear to me justifiable at this stage, which may be helpful to you.

1. The houses need not be identical, or of equal heat losses or degrees of insulation, or operated at equal indoor temperatures. What is important is that they have flues of equal size and flue height, that they be in the same local weather, have generally similar orientation and degrees of sun shading and wind exposure and above all that the occupants do not radically change their normal thermostat setting practice from one period of observation to the next. Since the latter point is important, I think it would be well for you to record for each period, using local Weather Bureau or gas company data, the accumulated degree days for each of the periods of observation.
2. At this stage, I believe there is no need for you to try to get newly calibrated gas or kilowatt hour meters for the houses you select. Simply use their present house meters, assuming they are in good operating condition and can be read to give usage data to about three-digit significance.
3. It may be well for you to have the two gas furnaces involved cleaned and the combustion air, etc., properly adjusted by the local gas people, and new circulating-air filters installed, before the start of the tests. These things should not be changed during the course of the observation periods.
4. To record the hours of burner-on time, you can use a digital "hour meter" which would be energized only when the burner gas valve is energized. An hour meter of this kind is made, for example, by the Engler Instrument Company, 250 Culver Avenue, Jersey City, New Jersey 07305, which has a meter for use at 24 volts on 60-cycle A.C. It can easily be connected to connections 2 and 3 of the VOM terminal block. Reset capability of the meter is not needed or desirable.

5. The test periods should be selected to be during moderately cold or cold weather, since the heat losses of dwellings are less likely to be proportional to indoor-outdoor temperature difference during mild weather. On the other hand, however, in weather so severe that the heating plant operates most of the time, the VOM would have little chance to effect savings. It would therefore seem that observations should cover a substantial part of a full winter, and that the hour-meter data may be important.

There is still another kind of determination that can quite simply be made while the testing of Houses A and B is going on. For this, find a third house, C, similar to, and in the same near neighborhood as A and B. The house C would not be fitted with a VOM--in fact nothing would be done with it except to read its gas and kilowatt-hour meters each two weeks at the time when those of A and B are read. Additional houses, D and E, could also be monitored and it might be advisable to do so.

It is then possible to plot the readings for fuel usage of House A as abscissae versus the fuel usage of House C as ordinates. In general, if all is going well, I believe two straight lines will result from the plotted points, one corresponding to House A with its VOM operative, the other to House A with its VOM locked open, during the successive two-week periods. The value of r (defined earlier) would then be determined by the ratio of the inverse slopes of the first and second lines. See the attached plot for a supposed set of data and evaluation of r . To define these two lines reasonably well, the data should cover at least half of a full winter season. The same sort of plot can be made for House B against House C, obviously.

If you have any questions about the procedure proposed, or wish to discuss it, I would be glad to have you telephone or visit, and at this stage would be glad to assist you in working up the results. At present it appears to me that useful indications as to the effect of the VOM on fuel savings can probably be obtained in a month or two of observations during full winter weather if the procedures described are carefully performed.

In proffering these suggestions to you, I must make it clear that if you proceed to carry out these field observations, NBS cannot endorse the results in any way. What we hope is that the procedure will make it possible for you to present findings of persuasive quality as regards field performance of your device.

Very truly yours,

Henry E. Robinson
Henry E. Robinson, Senior Research Fellow
Sensory Environment Branch
Building Research Division, IAT

-4-

Senator ABOUREZK. Mr. Taylor?

**STATEMENT OF NEUMON TAYLOR, GENERAL MANAGER, MEMPHIS
LIGHT, GAS, & WATER DIVISION**

Mr. TAYLOR. Thank you, Mr. Chairman. I am Neumon Taylor, general manager of the Memphis Light, Gas, & Water Division.

The Memphis Light, Gas, & Water Division is a division of the city of Memphis, and engaged in the distribution of electricity, gas, and water.

The Memphis Light, Gas, & Water Division neither sells nor installs appliances or appliance components, such as the Vent-O-Matic marketed by Mr. Woolfolk.

Sometime in 1971, Mr. Woolfolk and a former employee of the Memphis Light, Gas, & Water Division asked the cooperation of the division to test the Vent-O-Matic. This was not a scientific test or a laboratory-controlled test. It consisted of placing the Vent-O-Matic in several side-by-side homes, which would be comparable in size, but were not all in any way related to the size of the family or any of the habits of the people.

The indication was that the Vent-O-Matic did conserve gas to some extent, but the results, of course, could not be called conclusive.

The Light, Gas, & Water Division does not approve devices for installation. Any device, which is approved for installation in the home, must be done by the city gas inspector, who is under the control of the director of the public service and the city building official. The division has no say nor does it approve or disapprove of any device, but approval is done by the gas inspector building official of the director of public service, following the code of the city of Memphis. It is my understanding that the chief gas inspector did approve the installation of these devices within the city. The division had no objection to the installation of any device, so long as it met the approval of the gas inspector of the city of Memphis and is properly installed and operates safely.

In 1972, Mr. Woolfolk requested that the division release information to the newspaper telling of the various tests that were conducted and so advise the public. Mr. Woolfolk was informed that the division was not in the merchandising business and could not advertise any specific product. Mr. Woolfolk was advised that each manufacturer or distributor has to do his own promotion of the product.

We have an employee member of the division, who is also a member of Z-21 Committee of the American National Standards. This employee voted, originally, and upon a second vote, that the Vent-O-Matic be approved. He was in the minority.

The position of Light, Gas, & Water Division as to any device is to consider safety only. It is our understanding that this is or should have been the position of the committee. We cannot say there was not honest disagreement among the members of the committee as to the approval or disapproval of this device.

We have cooperated with the members of the staff of this committee to give them any information we had in our files and to let them discuss the matter with our employees and retired employees who acted in this matter.

The letter from Senator Hart to me indicated that Mr. Woolfolk would be a witness and would testify, among other things, that the

Memphis Light, Gas, & Water Division changed its position and informed prospective purchasers that the device was unsafe and that the division did not approve its installation. "He will further express his belief," so that the letter from the chairman states, "that the division changed its position due to pressure by the American Gas Association."

The division emphatically denies that it changed its position or that it was pressured by the American Gas Association to change its position. The division further denies that it informed customers or prospective purchasers that the device was unsafe.

This matter gained national publicity in October 1972, in a column by Jack Anderson.

Inquiries were received by the division and one of these inquiries was by Mr. Henry Loeb, a former mayor of the city of Memphis, who left office December 31, 1971. Mr. Loeb, as mayor, had appointed the various commissioners of the Light, Gas, & Water Division, as well as its president, Mr. Henze. And, on November 21, 1972, the division, through Carl Crawford, then director of public relations, answered the former mayor, and attached to my remarks is a copy of his letter.¹ And you can see that the answer to the former mayor did not say that the device was unsafe, but stated the position of the division, which was at that time and continued to be, that we did not either recommend or condemn the unit, but the customer is the one to decide. Of course, he decides with the advice of his heating contractor.

These devices are still being installed in the city, with the approval of the city gas inspector, and the division has neither recommended nor condemned their installation.

There was an inquiry, as a result of this article by Mr. Anderson, from the American Gas Association. This was particularly so, since Mr. Woolfolk had used the name of Memphis in the advertising. A position paper by the division was issued on January 31, 1973,² which states the same position, which was taken in the letter to our former mayor in November 1972.

The division believes Mr. Woolfolk is in error in any claim of pressure by the American Gas Association, or that we have taken a position adverse to him. We reiterate our neutral position, with the statement that our man on the committee voted and maintained his vote for the approval, and we have never changed our position that we consistently take as a publicly owned utility.

Senator ABOUREZK. Thank you, Mr. Taylor.

[Mr. Taylor read his prepared statement. The following were attachments to his statement. Testimony resumes on p. 567.]

¹See p. 566.

²See p. 565.



MEMPHIS LIGHT, GAS AND WATER DIVISION

CALVIN R. HENZE
PRESIDENT
HENRY T. WINKELMAN
VICE PRESIDENT
ROBERT I. BOWERS
COMMISSIONER
H.A. SILLIAM, SR.
COMMISSIONER
LLOYD B. LOVITT
COMMISSIONER

THE MLGW POSITION ON AUTOMATIC DAMPER DEVICES:

The MLGW does not recommend for or against the use of any automatic damper device or brand of such device.

The utility does provide useful, factual information regarding automatic damper devices to its customers, when requested to do so, but leaves the decision as to whether such devices are desirable up to the individual customer.

Automatic dampers are designed to close the flue vent automatically when the furnace cuts off. This traps whatever heat is in the furnace unit, preventing it from going out the flue. When the furnace comes back on, the damper is designed to re-open for proper venting. In principle, this would save some heat and thereby reduce the need for burning additional gas at additional cost.

There is a peril in any such damper device. Closing a flue vent on a heating system could be a dangerous thing. If the furnace came on but the damper device failed to open the flue sufficiently, the furnace would emit dangerous products of combustion.

The MLGW recommends that customers determine whether any appliance they wish to purchase has been tested and approved as to safety and reliability by national testing laboratories set up for that purpose--the Underwriters Laboratory in the case of electric appliances and the American Gas Association in the case of gas appliances.

The American Gas Association does not conduct tests until the American National Standards Committee has prepared and adopted a common standard for the particular appliance category. It is our understanding that the American National Standards Committee now has damper devices under consideration.

January 31, 1973

AHG/rm



MEMPHIS LIGHT, GAS AND WATER DIVISION

CALVIN R. HENZE
PRESIDENT
HENRY T. WINKELMAN
VICE PRESIDENT
ROBERT J. BOWERS
COMMISSIONER
MARIO S. ROYD
COMMISSIONER
H. A. GILLIAM, SR.
COMMISSIONER

November 21, 1972

Mr. Henry Loeb
365 Colonial Road
Memphis, Tn. 38117

Henry --

We are familiar with the VENT-O-MATIC. Here's what it does:

When your furnace cuts off, it automatically closes the flue vent. This traps whatever heat is in the furnace unit preventing it from going out the flue vent. This does save some gas cost. When the furnace comes back on, an automatic device opens the damper in the flue vent permitting the furnace to vent through the roof normally.

There is only one major peril, as we see it. Closing the flue vent on a heating system is a dangerous thing. If the unit ever malfunctioned and did not open, the furnace would overheat quickly; and unless it was shut off in time, it would catch fire. You would have a very dangerous situation on your hands in the attic, probably without knowing about it until the fire was roaring.

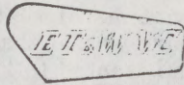
Because of that possible danger and the liabilities involved, the MLGW neither recommends nor condemns the unit. We just tell the customer how it operates, what the dangers are and what the benefits are; and let the customer decide whether he wants one.

I hope this is the information you need.

Cordially,

Carl Crawford
Director of Public Relations

nrp



Personal

Dear Carl,

This is for your information & I know nothing about it.

Please call me at your convenience & let me know if its something I ought to buy for my house.

Best

Wally (Loeb)

Senator ABOUREZK. I'm going to ask our staff counsel, Mr. John Ray, to propound a few questions.

Mr. RAY. Mr. Watts, did there come a time, when Mr. Grady, as manager of Memphis Light, Gas, & Water, held a meeting for the purpose of discussing the Vent-O-Matic, in January 1973?

Mr. WATTS. I don't believe I understood. You said, did he hold a meeting.

Mr. RAY. Did Mr. Grady hold a meeting in January 1973, to discuss the Vent-O-Matic?

Mr. WATTS. Yes, sir.

Mr. RAY. Were you present at that meeting?

Mr. WATTS. Yes, sir.

Mr. RAY. Could you tell the subcommittee who else was present at that meeting?

Mr. WATTS. If I can remember.

Mr. RAY. To the best of your recollection.

Mr. WATTS. Mr. Vaughn, Mr. Taylor, Mr. Head, Sam Head, Howard Miller, Fred Neal, and I can't remember offhand who the others were. A couple of more, I'm sure, were there.

Mr. RAY. Did Mr. Grady state the purpose of the meeting?

Mr. WATTS. The purpose of the meeting was to discuss the automatic damper as to what position to take on it.

Mr. RAY. Could you tell us the contents of that discussion?

Mr. WATTS. Well, the opening remark was, at that time, Mr. Grady said he was getting a lot of calls, and wanted to know exactly what position Memphis Light, Gas, & Water Division was taking at this point.

Also, he wanted some statement retracted. I assume, the statement was from Mr. Vaughn, Mr. Taylor, and myself, which had been printed by the newspaper.

Mr. RAY. And, what was Mr. Vaughn's statement?

Mr. WATTS. Mr. Vaughn made the statement that he could not retract his statement, because he had a letter written that had been published, and that he could not retract that letter, at this point.

Mr. RAY. And what was your response to that?

Mr. WATTS. Well, my response was, that I had made some statements also to the newspapers, and maybe the newspapers are not exactly correct on it, but I had made some of the statements, and I would not want to retract those statements that I had made either.

Mr. RAY. Now, as I understand you, Mr. Grady said he had received several telephone calls, had several conversations with AGA?

Mr. WATTS. Yes, sir.

Mr. RAY. And that Mr. Grady wanted certain individuals—and you assumed that was you, Mr. Taylor and Mr. Vaughn—to retract certain statements you had made favorable about the Vent-O-Matic.

Mr. WATTS. Well, I don't know whether it would be, what you call it—retract a statement that was favorable to the damper, at this point, but it was to take a position or a standing of what we were to do with this, and Mr. Carl Crawford wanted to make a statement which was not allowed at that time.

Mr. RAY. And, you, in essence, said to Mr. Grady that you could not or you would not change your position. That is, the statements that you had made to the newspaper?

Mr. WATTS. Yes, sir.

Mr. RAY. And Mr. Vaughn's position, if I understand you correctly, was that he had written this letter, and he, I guess, had sent this letter to some utility companies, did you say?

Mr. WATTS. Yes, sir, that he had written to Mr. Woolfolk.

Mr. RAY. I see, and do you recall what that letter said?

Mr. WATTS. The essence of the letter was that the damper did have some merits. From the testing that we conducted, it indicated that the damper had merit, and that steps should be taken to conserve fuel, at this point.

Mr. RAY. What was Mr. Taylor's response?

Mr. WATTS. I cannot remember what his response was at this point. It had been, that we would stay neutral, and I'm sure, that that was Mr. Taylor's response. I cannot say for sure that he made that statement, though.

Mr. RAY. Now, what happened after you and Mr. Vaughn stated that you could not change your positions? What followed that? Did you discuss this further?

Mr. WATTS. Yes. A letter was to be written, and I believe this was to be written to Mr. Hart, stating the position that I outlined that Memphis Light, Gas, & Water Division would take.

Mr. RAY. Mr. Watts, I am asking the clerk to hand you a document, I'd like you to take a look at it and identify it for the subcommittee.

[The clerk handing document.¹]

[Mr. Watts perusing document.]

Mr. RAY. Is that the position paper that resulted from the meeting in January 1973?

Mr. WATTS. No, sir, this is not the letter that I saw. In fact, it was sometime after that, before I saw the letter. I did not get a copy of it, but this is not the one. I do not know what this is. This is the first time I have seen this copy. I do not know whether this was taken at that time or not.

Mr. RAY. Now, does that document state the position that Memphis Light, Gas, & Water Division is—

Mr. WATTS. Yes, sir.

Mr. RAY. In looking at that document, does it cover the things that were discussed and were to be put into a position paper?

Mr. WATTS. Yes, part of this was discussed; I would say, the first two or three paragraphs, including the short one.

Mr. RAY. The first two or three paragraphs of this document were discussed?

Mr. WATTS. Including a paragraph on automatic dampers.

Mr. RAY. Now, was this document supposed to represent a compromise that the individuals reached at that meeting, a compromise that everyone could sort of live with, without you and Mr. Vaughn having to retract your statements?

Mr. WATTS. I think so, yes, sir.

Mr. RAY. And you said the first three paragraphs of this document contains what was discussed at the meeting?

Mr. WATTS. Yes, sir.

Mr. RAY. Well, what about the last three paragraphs—was that discussed at the meeting?

Mr. WATTS. No, sir, I cannot remember the last being discussed at the meeting. It was discussed quite a bit at the meeting on the savings and methods used for testing. And how we arrived at it was discussed, but I cannot remember any danger part of it being discussed at this time.

Mr. RAY. Is it a fair statement, Mr. Watts, to say that the last three paragraphs of that document implies that a device such as the Vent-O-Matic is dangerous and has not been tested for safety because AGA does not conduct tests until the American National Standards Committee has prepared and adopted a common standard? Would that be a fair summary of those last three paragraphs?

Mr. WATTS. Yes, sir, it does.

Mr. RAY. Did you see a final draft of the position paper when it came out?

Mr. WATTS. The letter that was written, I did see a copy of that. It was some time after that because, during this time I had put in for retirement and did retire, and it was some months—I will say a couple or 3 months—before I saw the letter that was written.

I went back up to Light, Gas & Water one day and someone showed me the letter that came out. And I think it was addressed also to the employees of L.G. & W.

¹ See p. 565.

Mr. RAY. Is it your understanding from Mr. Grady's discussions at this meeting that AGA was applying pressure upon him and he had to get some kind of position paper out to get them off his back?

Mr. WATTS. Yes, sir, I took that.

Mr. RAY. Did he, in fact, make a statement to that effect?

Mr. WATTS. That he had to give them an answer; yes, sir.

Mr. RAY. Repeat that again.

Mr. WATTS. That he had to give them an answer on our position—of Light, Gas, & Water's position.

Mr. RAY. My question was did he make the statement that we, meaning Memphis Light, Gas, & Water, had to do something to get AGA off our backs?

Mr. WATTS. Yes, sir.

Mr. RAY. Thank you, Mr. Watts.

Mr. Taylor, would you take a look at the document Mr. Watts has there in his hand?

Mr. TAYLOR. Yes, sir. [Perusing document.] I am familiar with this.

Mr. RAY. You are familiar with that document?

Mr. TAYLOR. Yes.

Mr. RAY. Did you attend this January 1973 meeting that Mr. Watts mentioned?

Mr. TAYLOR. Yes, I did.

Mr. RAY. How do you recall that meeting going? How do you recall what happened there?

Mr. TAYLOR. Well, I did not get the same impression Mr. Watts did. We were more concerned about what our position would be with our customers than we were with AGA, although AGA had asked what was our position.

Mr. RAY. Would you say that there was a vigorous debate took place?

Mr. TAYLOR. No.

Mr. RAY. There was not? And you do not recall Mr. Grady saying that AGA was applying pressure on him, that M.L.G. & W. had to do something to get AGA off our backs or anything to that effect?

Mr. TAYLOR. No, I do not, Mr. Ray. We were concerned about what kind of information our own employees—how they would reply to questions and we also wanted to make sure that our customers knew where we stood.

This paper was compiled, distributed to all of the employees, published in the local newspaper and a copy was sent to AGA.

Mr. RAY. Mr. Taylor, of course, pressure means different things to different people. Is not the relationship between Memphis Light, Gas, & Water and AGA such as that M.L.G. & W. naturally would not want to put AGA in an unfavorable position?

Mr. TAYLOR. Mr. Ray, of course, you have a pointed question there. Certainly, we are members of the American Gas Association and we would not intentionally put the association in an unfavorable position, if we could avoid it.

Mr. RAY. Going back to the document, Mr. Taylor, Mr. Watts has testified that only the first three paragraphs were discussed in this January meeting. What is your recollection?

Mr. TAYLOR. I think he is essentially correct, yes.

Mr. RAY. Now, would it be a fair statement to say that those last three paragraphs in there really say that a device such as the Vent-O-Matic is dangerous, that it has not been approved by your company and that it has not been approved by AGA, and that AGA will only approve devices when there is a ANSI standard? Is that a fair statement?

Mr. TAYLOR. No. I think, Mr. Ray, what we were trying to do here is let our customers know exactly where we stood, that it was not a nationally approved device, that we did not condemn it nor did we approve it ourselves but if they want to put it in and it is properly and safely installed, we will accept it.

Mr. RAY. But there is nothing in there which indicates you will accept it if it is properly installed. Indeed, Mr. Taylor, there is nothing in that statement which even mentions the fact that this device has been accepted by the chief gas inspector. Why didn't you put that in there?

Mr. TAYLOR. That is true, it is not in there.

Mr. RAY. Why was that left out?

Mr. TAYLOR. Because I did not write the statement, Mr. Ray; I do not know.

Mr. RAY. Well, if you had written the statement, would you have written a similar position paper or would you have written a different one?

Mr. TAYLOR. I probably would have mentioned that we would accept it provided it was approved or they got a permit from the gas inspector.

Mr. RAY. Since the last three paragraphs contained in that document were not discussed at your January meeting and it does not mention the fact that the device was accepted by the chief gas inspector, what action did you take to make sure that the position paper fairly stated the situation as it existed.

Mr. TAYLOR. We did state publicly, and in the press, that we would accept it provided they obtained the proper approval from the gas inspector.

Senator ABOUREZK. Mr. Taylor, I wonder if I might interrupt. I think what counsel is asking, is that if you did not agree with this position paper, did you take any action at all to get your viewpoint in the position paper?

Mr. TAYLOR. I did agree with it, Senator.

Senator ABOUREZK. But I thought you said that there were some things that were not—

Mr. TAYLOR. I said things that were written that I would probably have put something else in there but—

Senator ABOUREZK. That is what I am getting at, did you take any steps to put in your opinion, the additional opinion that you had?

Mr. TAYLOR. No, sir.

Mr. RAY. So, in essence, you agree with those last three paragraphs?

Mr. TAYLOR. Yes, sir.

Mr. RAY. OK. Now, is the Vent-O-Matic still approved for installation in the city of Memphis?

Mr. TAYLOR. Yes, sir, we will accept it today.

Mr. RAY. You have Vent-O-Matics installed in the city of Memphis?

Mr. TAYLOR. We do have them installed.

Mr. RAY. Would you say the ones that are installed are safe?

Mr. TAYLOR. The ones that are installed, yes; we have had good results with them.

Mr. RAY. And they were installed in the field were they not?

Mr. TAYLOR. Yes, sir, they were installed in the field by competent people.

Mr. RAY. So you do not agree with AGA's position that these devices should not be installed by local maintenance people; is that correct?

Mr. TAYLOR. I do not know what AGA's position on that is other than that they will accept them as an integral part of a new set and I have some reservations myself about them being accepted as a retrofit unless you control the people who actually do the installing.

Mr. RAY. My question is that you have stated that these devices were installed in your city as retrofit units, assume for the moment that AGA's position is that these devices should not be installed by local maintenance people, do you agree or do you disagree with that?

Mr. TAYLOR. I thought I just stated my position, Mr. Ray. We will agree to disagree with AGA provided that the unit is installed by competent, knowledgeable people who know what they are doing.

Senator ABOUREZK. Would that include, Mr. Taylor, local maintenance people? Would they be competent?

Mr. TAYLOR. Yes, sir.

Senator ABOUREZK. Your answer is "Yes"?

Mr. TAYLOR. Yes, sir.

Senator ABOUREZK. Then that differs from AGA's position, they do not say that at all; do they?

Mr. TAYLOR. I think AGA is here, they can speak for themselves on that sir.

Senator ABOUREZK. I think that is all the questions we have.

We want to thank you all very much for coming here to offer your testimony and for responding to the questions.

Senator ABOUREZK. The next panel is Mr. F. D. Hart, president of the American Gas Association of Arlington, Va.; Mr. F. E. Hodgdon, manager of AGA's Testing Laboratory, Cleveland, Ohio, and Mr. W. H. Johnson, vice president, National LP Gas Association, Chicago, Ill.

Mr. Hart, first of all we would like to welcome you to the subcommittee and if you and your panel are ready to present your testimony, we are ready to hear it.

**PANEL FROM AMERICAN GAS ASSOCIATION COMPOSED OF
F. DONALD HART, PRESIDENT, FRANK E. HODGDON, VICE PRES-
IDENT, AND F. BOSLEY CROWTHER, GENERAL COUNSEL**

STATEMENT OF DONALD HART

Mr. HART. Thank you, Mr. Chairman.

I am F. Donald Hart, president of the American Gas Association, the national trade association for America's natural gas transmission and distribution companies.

I am accompanied today by Frank E. Hodgdon, vice president of the American Gas Association and director of its appliance and equipment testing and certification laboratories, and also by F. Bosley Crowther, AGA general counsel.

We are here in response to the invitation of your subcommittee to testify about our testing and certification program and about our experiences with Mr. Woolfolk and his Vent-O-Matic device.

AGA is a nonprofit, nonstock association. Our member companies serve gas in all 50 States to just under 90 percent of the 42 million natural gas consumers in the United States. We estimate that our cleaner burning, more efficient, and more economical fuel is used in the homes of some 150 million Americans. Our members are not manufacturers of gas appliances but they have long been concerned about the safety and durability of gas utilizing equipment since it is the medium through which our product is used. For this reason, our Association has had for the past 50 years a voluntary testing and certification program for such equipment.

Let me note that our association firmly supports any and all steps to conserve our Nation's energy resources so long as they are consistent with the safety of the consumer. Since 1970, well before the Arab oil embargo and the current concern over energy shortages, AGA has had a policy, in all of its communications and through its sponsorship of research, that encourages the conservation of natural gas.

At least one of our member companies is currently conducting a field test program of the value and safety of retrofitting heating systems with flue damper devices. We support these efforts, being done as they are with the active participation of and recognition by the local inspection authorities.

Others of our members, we believe, have also considered the Vent-O-Matic device. We did not and do not oppose this. The primary concern about the Vent-O-Matic device apparently has been the manufacturer wished to sell it under circumstances where an inexperienced homeowner might install it himself and, by doing it incorrectly, possibly precipitate a disaster for himself and his family.

Senator ABOUREZK. Mr. Hart?

Mr. HART. Yes, sir?

Senator ABOUREZK. I want to ask your permission to interrupt you at this point because I think that the statement you just made kind of goes right to the heart of this whole set of hearings. Is it all right if I interrupt you at this point or should I wait until it is finished?

Mr. HART. I just have a rather short statement and I think it might be worthwhile if we completed the statement but, as you wish.

Senator ABOUREZK. Well, whatever you think. Do you want me to wait?

Mr. HART. I would like to finish the statement, if I may.

Senator ABOUREZK. All right, go ahead, then.

Mr. HART. Before I introduce Mr. Hodgdon, let me state for the record that the first time I, personally, ever heard of the Vent-O-Matic device or any issue regarding certification of flue damper devices by the American Gas Association, was in October 1972, when an article with respect to this matter appeared under the byline of Jack Anderson. After the story appeared, I received inquiries on many

occasions from member companies, from Members of the Congress, the press, and others with respect to it, and I always attempted to explain what AGA saw as the issues involved and what our very clear-cut and long-standing policies are.

Specifically, with respect to Memphis Light, Gas, & Water Division, I lived for many years in Tennessee and still have family there. In the fall of 1972, I had a daughter in a hospital in Memphis for a prolonged series of severe operations and I spent quite a bit of time there. Whenever I am in a city where there is a member company, and I can conveniently do it, I try to visit that member company. I did this in the case of the Memphis company. We did discuss the Vent-O-Matic device and the Anderson article. The men with whom I talked indicated to me that they did not believe that the Anderson article or any of the various statements put out under the name of the Memphis division by one of their lower-level employees represented the true attitude of the company. Therefore, since a specific allegation has apparently been raised before this committee, let me here state further for the record that I did not at any time attempt to suggest, urge, or press any position upon them.

In this connection, let me note that Memphis Light, Gas, & Water Division is a municipally-owned, as opposed to an investor-owned utility, and is one of the leading members of the American Public Gas Association, which has opposed the American Gas Association on matters of policy on many occasions. However, Memphis Light, Gas, & Water has also seen substantial benefits in many of AGA's programs and, accordingly, has participated for many years as a full dues-paying member of our association. I would be flattered if I believed that I could do anything to change them from a policy in which they believed; I know I cannot.

I would like to ask now that Mr. Hodgdon, the director of our laboratories, explain more fully our program and our dealings with this subject of Mr. Woolfolk.

Senator ABOUREZK. Now, before Mr. Hodgdon goes on with his statement, going back to your statement where you say that the primary concern about the Vent-O-Matic device apparently has been that the manufacturer wished to sell it under circumstances where an inexperienced homeowner might install it himself and, by doing it incorrectly, possibly precipitate a disaster for himself and his family. Do I understand that to be a statement of your position on the Vent-O-Matic?

Mr. HART. That is a possibility that exists with a device of this kind.

Senator ABOUREZK. Right. Did your association ever issue a statement to that effect?

Mr. HART. I cannot recollect a specific statement. I believe it was our general feeling.

Senator ABOUREZK. But you never issued any statement?

Mr. HART. I do not know of any public statement to that effect.

Senator ABOUREZK. All right. So you never issued it but that essentially is your position.

Now, did you or your association ever take the position that it could be sold and installed by competent maintenance people in the field?

Mr. HART. We took no position in that respect because it is not our position to dictate how any merchandise is sold or distributed.

Senator ABOUREZK. Well, you just took a position saying how it ought to be sold and distributed.

Mr. HART. We expressed an opinion as to a possibility that could happen from this device.

Senator ABOUREZK. Did you ever express an opinion affirmatively by saying it could be?

Mr. HART. I do not recollect whether we did or not.

Senator ABOUREZK. Are you aware of the allegations that because you did do this that the marketing of this product, the Vent-O-Matic, has been thwarted nationwide?

Mr. HART. I heard Mr. Woolfolk testify this morning, yes, sir.

Senator ABOUREZK. All right, do you agree with that concept or not?

Mr. HART. No, I do not necessarily agree with that concept. I was a manufacturer myself for many years and the burden of selling your product and meeting the requirements of the marketplace falls on the manufacturer to cope with.

Senator ABOUREZK. Well, I mean, even if the requirements of selling it and installing it had been met by the manufacturer, if he does not get some kind of approval from a standards organization—in this case, the American Gas Association—it just does not happen, does it? The selling of it just does not happen, is that correct?

Mr. HART. It can make it very difficult, I will agree.

Senator ABOUREZK. OK. Then you would agree that the American Gas Association has made it very difficult for this product to be marketed?

Mr. HART. No, I would not agree that we have made it difficult for this product to be marketed. We stand willing to test this equipment if there exists a standard by which we can test it.

Senator ABOUREZK. And who would have to set the standard?

Mr. HART. It would have to be set by a standards-making body such as ANSI.

Senator ABOUREZK. How about AGA?

Mr. HART. AGA does not set standards. This is a misconception that many people, and people here this morning, have stated.

Mr. RAY. I understand that ANSI does not set standards either, Mr. Hart. ANSI tells me that it only adopts standards. So who sets the standards?

Mr. HART. I think on a technical matter like that, maybe I ought to ask Mr. Hodgdon, he has been dealing with standards a lot longer than I have.

Senator ABOUREZK. Would you like to comment, Mr. Hodgdon?

Mr. HODGDON. Yes; I would be glad to.

Senator ABOUREZK. Mr. Hodgdon, go ahead. I just want to say that we have here what is known as a catch-22 and we are going to try and find out how to break that chain, if we possibly can.

Mr. HODGDON. I guess I do not understand what chain we are going to break, Senator, but I will do my best.

Senator ABOUREZK. I will explain that to you if you will permit me to, then.

The chain that we are going to try to break is this series of links where everybody involved in setting standards or adopting standards says, "I do not do it, it is the next guy".

What we are trying to do is figure out how to save fuel, and if this device will save fuel, as has been testified to, why not develop a standard or approve its installation so that it can be sold so that fuel can be saved.

That is the chain that we are going to try to break, that catch-22 chain.

Mr. HODGDON. Now, Senator, what is it that you would like me to address myself to, why the committee does not belong to ANSI and does not belong to AGA?

Senator ABOUREZK. No, what I would like you to address first is, if you agree with Mr. Hart that if AGA will not put its stamp of approval on the installation of the Vent-O-Matic, even by competent field people, then how is this product ever going to be marketed so that we can save fuel. Would you address yourself to that?

Mr. HODGDON. Why do you not just let me explain the committee and how they work, why they are where they are, and that kind of thing, and then we go on from there?

I mean, I am an engineer at bay here among public officials and so on and it is not what I am most used to, you understand, but do let me start and tell you about the committee because I can see that there is no great understanding about it except that I am sure Mr. Ray understands about it.

It is not an ANSI committee, no. It is a committee that operates very strictly under rules laid down by ANSI for national standards committees to follow. And so it is not an ANSI committee but it does operate under ANSI rules.

It is not an AGA committee either. AGA has members on that committee but the connection that AGA has with the committee is that AGA, under the ANSI rules, has taken the secretariat of the committee because there has to be someone for a committee to operate, who will provide a meeting place, who will provide staff to do the typing, whatever; who will provide a means of printing the standards of the committee after they are approved by ANSI; to do all manner of work of that character and, on occasion, sometimes to do some technical investigations and the like, of that.

So that this is, in fact, then, an independent national committee. AGA cannot tell the committee what to do. Sometimes we try and we hardly ever succeed to get them to see our way somehow.

And ANSI cannot stop them, or anything of the sort. They act out of the knowledge of their own members and the ANSI rules under which they are formed requires that there be no one group less than 25 percent membership on the committee.

This is why manufacturers of all of the different kinds of appliances have less than 25 percent of the membership of the committee and why more than half of the committee membership is made up of various national associations who have interests in particularly the consumer end of the gas business, the insurance people, the governmental agencies who deal with people, or with the technology that is involved; organizations of that kind.

This committee comes to its own conclusions in what they consider. I think it fair to say that when the people in Canada—the Provincial inspectors in their council—at the first meeting when they met together to discuss matters and went over this thing, decided that since they were the chief people that had responsibility for the safety for Canadians, that they were not going to depend on the hope that the product would be marketed in Canada any differently than many other products are marketed.

There are very few things that we home mechanics cannot buy, one way or another, and put in for ourselves.

MR. CHUMBRIS. Mr. Hodgdon, maybe I can pinpoint what the chairman is trying to bring out. I am quoting from a House committee report on voluntary standards and they define ANSI, the American National Standards Institute, as 180 voluntary organizations and it lists categories such as acoustics, chemicals, instructions, and so forth.

Is that the way you see it—that there would be 180 different types of voluntary groups, and each one has its own specialty. Do you see it that way?

MR. HODGDON. Yes, sir.

MR. CHUMBRIS. Now, how would you define the one of those 180 voluntary groups that looks into the matter that is the issue before this subcommittee? Which one of those 180 voluntary groups would that be?

MR. HODGDON. I suppose that it would be referring to the American National Standards Committee Z-21.

MR. CHUMBRIS. All right. Now, so we pinpoint Z-21 as one of 180 voluntary groups that studied this issue?

MR. HODGDON. I do not know, sir, whether that—

MR. CHUMBRIS. Does that pinpoint it any more?

Senator ABOUREZK. That was not my question.

MR. CHUMBRIS. Well, go right ahead.

The point is: Would you know that Z-21 is one of 180 voluntary groups?

MR. HODGDON. No, sir, I do not really know that, because this is a statement made by ANSI. I do not know in what context, and they could just as well have been referring to the National Liquefied Petroleum Gas Association and the American Gas Association as being some of those groups. I just do not know what context it was used in.

MR. CHUMBRIS. I think the chairman's question was asking: Is AGA, or ANSI, or who is, the one that really puts out the voluntary standard? I think that is how we will have to pinpoint it.

MR. HODGDON. Yes, sir. My answer to that is the American National Standards Committee Z-21, which is a completely independent organization.

Senator ABOUREZK. Do you have any more you want to give us?

MR. HODGDON. No, sir. Shall I commence to read my statement?

Senator ABOUREZK. Before you do that, I wonder if I might ask a few more questions.

Now—and anyone in your panel who wants to answer, feel free to answer—has the American Gas Association ever given its stamp of approval for any accessory to be used on a gas furnace?

MR. HODGDON. Yes.

Senator ABOUREZK. What would that be? Can you just name one or two?

Mr. HODGDON. Gas valves, regulators, devices of that character.

Senator ABOUREZK. Now, let us take a gas valve, for example. Could you explain exactly how your stamp of approval would be given and how does the product come to you and so on?

Mr. HODGDON. Well, Senator, in the first place, we do not approve things. That terminology went out some years ago. We certify that a given device complies with a given standard that is pertinent to it.

Senator ABOUREZK. All right. How did you certify a gas valve, for example?

Mr. HODGDON. The manufacturer of the gas valve, if he wanted certification on it, would send it into the laboratories——

Senator ABOUREZK. To whose laboratory?

Mr. HODGDON. To our laboratory, and we would examine the gas valve to find out whether or not it, in fact, complied with the standard. We would make whatever measurements needed to be made, both physical and operational, depending what the standard said to do. If the device, in fact, complied with the standard, we would certify that it did, in fact, comply with that standard.

Senator ABOUREZK. OK. Now, where did the standard come from, by which you tested this gas valve?

Mr. HODGDON. American National Standards Committee Z-21.

Senator ABOUREZK. And they established the standard for it?

Mr. HODGDON. Yes, they did.

Mr. CHUMBRIS. When you referred to "our," were you referring to AGA or to Z-21?

Mr. HODGDON. To AGA. I do not belong to Z-21.

Senator ABOUREZK. I am told by Mr. Ray, that ANSI has told him that it does not set standards; it adopts standards. Now, what I am trying to find out is, where are the standards set that ANSI adopts? Do you want to answer that?

Mr. CROWTHER. Mr. Chairman I think it is just a confusion in terminology. ANSI is a corporation, a nonprofit corporation, that, in effect, serves as an arbiter of standards-writing activities. They contend they do not write any standards themselves; they only promulgate the rules and procedures under which standards should be written, if they are to be accepted by ANSI, as American national standards.

The Z-21 Committee is an independent committee operating under those rules and procedures and proposing standards to ANSI for this sort of acceptance. So that ANSI is technically correct when they say they do not write them. What they do is accept them, if they have been prepared under their rules and procedures.

Senator ABOUREZK. By Z-21.

Mr. CROWTHER. By Z-21 or by any one of the other committees—there are three altogether in the gas field, and there are a vast number of others writing them for all sorts of equipment and other products.

Mr. RAY. Mr. Hodgdon. The American Gas Association has a certain number of members on the Z-21 Committee, and all of those members are utility companies; is that correct?

Mr. HODGDON. Yes. Because only utility companies can be members of AGA.

Mr. RAY. So, while technically AGA can say, we are not in the standards-setting business, you do have members on the Z-21 Committee?

Mr. HODGDON. Yes, I said that at the outset.

Mr. RAY. Also, I think GAMA has members on there.

Mr. HODGDON. Yes. I testified to that also.

Mr. RAY. There you would find some furnace manufacturers as well; is that correct?

Mr. HODGDON. Yes.

Mr. RAY. And I think between GAMA and AGA, they account for about half the members on the Z-21 Committee, is that correct?

Mr. HODGDON. A little less, I believe.

Mr. RAY. A little less than half. Now, you also have some members on there, which, I guess, would be classified as general interest; is that a good term?

Mr. HODGDON. Yes.

Mr. RAY. I think, perhaps, Mr. Walter Johnson would be considered a general interest member. Now, he represents the National LP Gas Association?

STATEMENT OF WALTER H. JOHNSON, VICE PRESIDENT, TECHNOLOGICAL SERVICES, NATIONAL LP-GAS ASSOCIATION

Mr. JOHNSON. Yes.

Mr. RAY. I suspect some utility companies are also members of your organization?

Mr. JOHNSON. Not really. Utility companies are, by and large, members of the American Gas Association.

Mr. RAY. What about manufacturers of gas appliances?

Mr. JOHNSON. Yes, sir. The National LP Gas Association is the trade association for the LP-gas industry and we have, within our membership, the producers of LP-gas, the distributors of LP-gas, some of which may be in a small utility—very few low—and we also have equipment manufacturers and some appliance manufacturers. We are a vertical organization.

Mr. RAY. So about half of the members are from either utilities, furnace manufacturers, manufacturers of gas appliances, or trade associations whose members are manufacturers of gas appliances? Now, AGA is the secretariat of the Z-21 Committee, is that correct?

Mr. HODGDON. Yes.

Mr. RAY. So, it would seem to me, Mr. Hodgdon, while technically, you can say that AGA does not set standards, it certainly has a role in seeing that the Z-21 Committee functions as a standards-developing committee?

Mr. HODGDON. Yes, sir.

Mr. RAY. So, it does have a role in developing standards, does it not, in that sense?

Mr. HODGDON. In that sense, yes.

Mr. RAY. But what has been created here is a system which makes it very easy, of course, for AGA to say, we do not set standards. We act as the secretariat for the Z-21 Committee; we sort of handle all of the administrative problems.

Mr. HODGDON. And that is correct.

Mr. RAY. And then, ANSI, on the other hand, can say, we do not write standards. We only adopt standards set by the Z-21 Committee.

Mr. HODGDON. Yes, sir. And that is by plan and purpose. So that the committee is, in fact, independent to itself and has to take orders from nobody.

Senator ABOUREZK. Except that the membership of the committee, while it may not take direct orders from anybody, as you say, consists of people who might find it in their interests not to conserve natural gas. Would that be a fair assessment of what the situation is?

Mr. HODGDON. I do want to correct one minor misapprehension that you have in the questions, and it is minor. But it is a matter of fact that the membership of the American National Standards Committee is, really, directed by the organizations that are represented on that committee. And so, the people are representatives of AGA, representatives of GAMA, representatives of NLPGA. This is a minor distinction, as I say, and I probably should not have bothered you with it. As to the people serving on there having an inducement not to save gas or to look after the overall supply and that kind of thing, I should say, certainly not. After all, this particular group of standards, which deals with gas appliances, is the only one that I know of in the realm of appliance standards, that have any requirements whatsoever as to the thermal efficiency of the appliances.

Most all other standards treat solely with safety. And I think that that committee has proven, over all the years that it has been in place and developing standards, that they certainly do have an interest, and a greater interest than any other committee, in the conservation of gas.

Mr. CHUMBRIS. Mr. Hodgdon, in your prepared statement, you make two comments. One, that the Z-21 Committee is made up of one-fourth utility representatives appointed by AGA; one-fourth appliance and equipment manufacturer representatives appointed by GAMA; and the balance, or one-half of the committee, representatives of the public interest. And further down you say that many of the manufacturers and utility representatives involved, either voted for the standard, or abstained, and it is primarily the votes of the public interest representatives that caused the standard to be rejected for safety reasons.

Where do those 50 percent of the public interest representatives come from?

Mr. HODGDON. Well, sir, we have listed there only the Federal agencies, so I presume that you do not particularly have those in mind. Those are the ones that are noted in the statement as the inspection authority of the city of Los Angeles; and employees from General Services Administration; Naval Facilities Engineering Command; U.S. Department of Health, Education, and Welfare; the Federal Housing Administration, and the Bureau of Mines. We note that six of these voted against approving the draft standard on this specific device.

Mr. CHUMBRIS. The reason why I was being cautious about that question, you or we, to make sure who are we talking about. Mr. Ray, I think, if I quoted him correctly, said—and I do not remember exactly the full wording—but he left the thought that AGA was

really the one doing the standard setting. But according to your definition, if it is accurate, you only appoint 25 percent of the components of Z-21, is that correct?

Mr. HODGDON. That is correct.

Mr. CHUMBRIS. How many of that 25 percent come from AGA?

Mr. HODGDON. All of them.

Mr. CHUMBRIS. All of them. So 75 percent are not part of AGA?

Mr. HODGDON. That is correct.

Mr. CROWTHER. Mr. Chairman, excuse me. This is a matter about which AGA is quite concerned and, with which, we have tried to deal throughout as fully and honestly and fairly as we could. And I really would request that Mr. Hodgdon be allowed to read his prepared testimony, seeing as how I feel a great number of these matters are dealt with in that testimony, and it would possibly make this a little clearer and a little easier presentation—a little less confusing to the subcommittee.

Mr. HODGDON. Shall I go on with that, sir?

Senator ABOUREZK. Yes, go ahead. And if you could summarize your statement we would appreciate it, because we have a great many questions yet to ask.

Mr. HODGDON. I will do the best I can to keep it short.

I am going to start about half-way down the first page, Senator, and remind the committee that the major thrust of the program has been the safety of the gas customer.

STATEMENT OF FRANK E. HODGDON

Mr. HODGDON. We also, obviously, have to deal with all manufacturers in the same equal and impartial manner. Actually, we feel strongly that we assisted and cooperated with Mr. Woolfolk, to the full extent of our abilities.

Mr. Woolfolk's perception of this whole matter, of course, is different from ours, for reasons that are becoming obvious in this hearing. But I do have to say that the laboratory has not unreasonably refused to develop a standard and test methodology, which would allow this product to be certified as a retrofit unit.

We have not unreasonably refused, we simply have not that power under the rules that we have to operate by. And Mr. Woolfolk, as we have noted, got notice of every meeting of the Z-21 Committee and, I believe, that Mr. Myers of our organization, frequently advised him how best he might make his presentation.

Contrary to Mr. Woolfolk's allegation that furnace manufacturers and utility companies have disproportionate representation on the committee, but I will not deal with that again, because we have just now talked about it.

Now, I believe I have also mentioned, a few minutes ago, the action of the Canadian inspection authorities, and I am personally convinced that that matter did, in fact, bring to the attention of some committee members, that here was a body of competent inspection authorities who were not going to let the device go by in their country.

Now, quite frankly, we feel that Mr. Woolfolk's complaint is that his arguments were not successful before the committee. We believe

it to be a competent committee; it's been competent for 50 years. And we are required to support their judgment.

Now, one thing that I do not know whether or not the subcommittee knows about is that one manufacturer, who has a mechanical damper device, came before the committee and supported the concept that the equipment should not be sold on a retrofitted basis, but only to original equipment manufacturers. And he put forth, as his reason, that he was afraid of court cases being brought against him and that kind of thing, and he wanted, himself, to be sure that they were properly applied to the appliances concerned.

Now, I should also say to you that the manufacturer has gotten together with, I believe, a boiler manufacturer, and a series of boilers with attached devices of this character are now progressing through the laboratories and I had hoped, perhaps, would be certified by this time. But since no one called me today, they probably have not been completed.

I think I ought to go on, on this point, a little further, since this question has been raised. But it is not, as Mr. Woolfolk was afraid this morning, it is not true that he would have to have this thing go through the whole gamut of tests that were done originally the first time the laboratory had ever seen one. Because the laboratory does keep its records and we do not do duplicate work.

And if Mr. Woolfolk's device or anyone else's—this one in case, was once tested, the 100,000 cycle test and all that sort of thing—would not be repeated again as long as the structure of the device had not been changed. We would only have to determine whether or not the device interacted properly and safely with the furnace boiler or whatever it was being attached to and so forth.

In the chairman's letter, it said that Mr. Woolfolk believed that AGA used its influence to prevent use of his product and we certainly deny that allegation. And, as I have said, we have sought to be of whatever assistance that we could to cooperate.

When Save-Fuel representatives first came to our laboratories, they brought in a very crude bimetallic device, about which at least one safety complaint had already been received. AGA employees met with them and suggested that they utilize an electrically activated mechanical device to accomplish the purpose.

When we did that, we pointed out carefully that the device would not be acceptable for certification on its own because there was not any standard that covered it. And so, when Save-Fuel created such a device, it was our personnel who suggested that while we could not certify it as an independent device, that we could test a furnace which had the equipment installed on it as an integral part, and that we could, in fact, certify this. And this, as you all know, we did, in 1968.

Senator ABOUREZK. When you say "we," who are you talking about?

Mr. HODGDON. I am talking about the laboratories. When I say "we," I mean the laboratories.

Senator ABOUREZK. Which laboratories?

Mr. HODGDON. American Gas Association laboratories. The laboratories are involved in the certification program which is based on American National Standards.

Senator ABOUREZK. Can I just interpose a question? You have said that you are interested in conserving natural gas. Is that an accurate statement?

Mr. HODGDON. Yes.

Senator ABOUREZK. Depending on how interested you are, would it be incumbent upon AGA to try to promote some kind of a fuel-saving device and try as hard as it could to get standards adopted for it, so that it could be marketed under conditions where a competent workman would retrofit it? Would that not be in your interest, if you are, indeed, trying to save gas?

Mr. HODGDON. I do not think that AGA ever promotes devices, specifically, as such. As far as the standard is concerned, AGA did what it could.

Senator ABOUREZK. Did what it could to what?

Mr. HODGDON. As far as the standard is concerned.

Senator ABOUREZK. You mean you did what you could to get a standard adopted?

Mr. HODGDON. Yes.

Senator ABOUREZK. And what did you do to get a standard adopted?

Mr. HODGDON. We participated in the work of the committee.

Senator ABOUREZK. Of the Z-21 Committee?

Mr. HODGDON. Yes.

Senator ABOUREZK. And what position did you take in the debate of the Z-21 Committee?

Mr. HODGDON. I do not really know. I do not attend those meetings. Sometimes I do attend one as a guest, you know, that provides the house, or something, in which the committee meets, but—

Senator ABOUREZK. Well, Mr. Johnson, do you know what position AGA took during the Z-21 Committee's debate on this automatic damper?

Mr. JOHNSON. I would prefer not to speak for AGA.

Senator ABOUREZK. But you know what position they took?

Mr. JOHNSON. Yes.

Senator ABOUREZK. What position did they take?

Mr. JOHNSON. I believe that they had submitted a letter to the committee some time ago on that.

Senator ABOUREZK. I did not ask if they submitted a letter. I am asking you if you know what position they took.

Mr. JOHNSON. I cannot speak for the AGA. I think that this is beyond my capacity.

Senator ABOUREZK. Well, Mr. Hodgdon does not know, and Mr. Johnson does not know, does Mr. Hart know?

Mr. JOHNSON. I would prefer only to speak for myself, the National LP-Gas Association representative, sir.

Senator ABOUREZK. All right. Perhaps Mr. Hart would know what position AGA took during the Z-21 Committee debate on the standard for this device.

Mr. HART. The individuals who represented the American Gas Association, who had been named to Z-21 by AGA, speak for themselves at these meetings. They do not speak for AGA. So AGA did not take a position, as an organization, with the Z-21 Committee.

Senator ABOUREZK. Did you submit a letter to Z-21?

Mr. HART. I could not tell you. We may have, I do not know. But I know that when there was a need for a standard, that need was expressed and a committee—a subcommittee was organized to create such a standard.

Senator ABOUREZK. All right. If the representatives of AGA on the Z-21 Committee, speak for themselves, how did they speak? Do you know that?

Mr. HART. I do not know how they spoke. I was not in attendance at the meeting.

Senator ABOUREZK. Does Mr. Johnson know? Mr. Johnson, do you know?

Mr. JOHNSON. I cast my ballot as a member of the Z-21 Committee and expressed myself in those terms; yes, sir.

Senator ABOUREZK. And how did you express yourself?

Mr. JOHNSON. Well, if we are going to go back through the history of the balloting on this, when the first draft came out, I voted for it.

Senator ABOUREZK. For what?

Mr. JOHNSON. Favorably, for the draft standard.

Senator ABOUREZK. OK. And then what happened?

Mr. JOHNSON. And then there was a second ballot, in light of some comments that were made on the first ballot. And I voted favorably at that time for the ballot.

Senator ABOUREZK. You voted for establishing standards for a Vent-O-Matic device, or that type of device?

Mr. JOHNSON. Yes. But then at the April 10 meeting, I believe it is, 1974, where the final action was to be taken, the comments and discussion during the committee meeting were such to make me change my mind at that point.

Senator ABOUREZK. Then you voted against establishing the draft standard?

Mr. JOHNSON. Yes, sir.

Senator ABOUREZK. Now, at any time did you discuss what your position would be with anybody in the AGA?

Mr. JOHNSON. I speak solely for myself, the National LP-Gas Association representative. I did not discuss it with them; no, sir.

Senator ABOUREZK. No. My question was: Did you discuss your vote or your position or AGA's position on this device, with anybody from AGA?

Mr. JOHNSON. No. The vote was taken on the floor at that meeting. And there was no discussion up until that point.

Senator ABOUREZK. I would like to try to get a direct answer from you. Did you ever discuss, by letter, telephone, personally, or by any other means, with AGA officials, what your position would be when it came time for you to vote? You can answer either yes or no. It is a very simple question.

Mr. JOHNSON. Not with the AGA officials, solely; no, sir.

Senator ABOUREZK. Solely; what does that mean? Did you discuss it with them at all?

Mr. JOHNSON. I suppose everyone discussed this. It was on the top of their heads.

Senator ABOUREZK. We will get to that. But you can answer yes or no. Did you discuss it with them or did you not?

Mr. JOHNSON. Yes, I did.

Senator ABOUREZK. You did discuss it with them?

Mr. JOHNSON. Yes.

Senator ABOUREZK. Now, who did you discuss it with?

Mr. JOHNSON. I am a member of the executive committee of the Z-21 Committee, and we discussed items of that, but—

Senator ABOUREZK. I am asking now, specifically, about officials of the American Gas Association. You have said that you did discuss your position on this matter with officials of the American Gas Association.

Mr. JOHNSON. Well, I will have to retract that statement, if it is phrased in those terms. Discussion did not involve my position.

Senator ABOUREZK. Well, let me ask you again. Did you discuss the Vent-O-Matic device, or the standard for the Vent-O-Matic device, with any officials of the American Gas Association, in any way, by letter, telephone, personal conversation, or through an intermediary? And that can be answered either yes or no. You either did or you did not.

Mr. JOHNSON. Casually, yes.

Senator ABOUREZK. Your answer is "Yes?"

Mr. JOHNSON. Yes.

Senator ABOUREZK. All right. Now, with whom did you discuss your position? Did you discuss it with Mr. Hart?

Mr. JOHNSON. No. I did not.

Senator ABOUREZK. Did you discuss it with any of the lawyers?

Mr. JOHNSON. No.

Senator ABOUREZK. Did you discuss it with any other officials of the American Gas Association?

Mr. JOHNSON. Sir, I think I am getting myself into a box in trying to answer yes or no here, that is not reality—my discussion on this with any official of the AGA had nothing to do with it. My final action was taken at the April 10 meeting. I was firmly convinced, up until that time, at a conference table, that that standard was a good standard, and I voted for it. It was only at the discussion at that table, itself—and I had no opportunity to discuss this beforehand—until that vote was taken at that table. That is when I changed my mind.

Senator ABOUREZK. Did you ever discuss it with Mr. Hodgdon?

Mr. JOHNSON. The standard itself?

Senator ABOUREZK. Yes.

Mr. JOHNSON. Oh, I am certain we discussed it—not in specific terms, but I am certain we discussed it, as an item that would come up for consideration, but not on its merits.

Senator ABOUREZK. Did you discuss it before the April 10, 1974, meeting?

Mr. JOHNSON. Yes, I am sure we did.

Senator ABOUREZK. And how many times did you discuss the standard with him?

Mr. JOHNSON. Oh, I cannot recall. It cannot be all that many times, no.

Senator ABOUREZK. Was it as many as two times?

Mr. JOHNSON. Oh, yes.

Senator ABOUREZK. As many as five?

Mr. JOHNSON. No.

Senator ABOUREZK. Somewhere, roughly between two and five?

Mr. JOHNSON. Yes.

Senator ABOUREZK. All right. Now, did Mr. Hodgdon express himself on that standard at all, when you discussed it with him?

Mr. JOHNSON. No. No.

Senator ABOUREZK. You did all the discussing; he said nothing?

Mr. JOHNSON. We discussed just procedural matters, more than anything else, and the matter of the technical content of it. I was firmly convinced. I am firmly convinced—up until the time, as I said, the ballot taken on the floor at that time—that I was for the standard.

Senator ABOUREZK. Well, what procedural matters did you discuss with Mr. Hodgdon?

Mr. JOHNSON. Well, it was not really with Mr. Hodgdon, it was the administrative secretary, who happened to be Mr. Cramer at the time, and this had to do with the replacement of a person on the task force itself; with those matters.

Senator ABOUREZK. Well, wait a minute now. You said you discussed the standard itself, with him.

Mr. JOHNSON. Right. Well, let me put it this way, I think I had better say what the discussion related to: In the task force work of this standard development, our first meeting, we hammered a concept of the standard and we had instructed the laboratory staff, which are AGA personnel, to fill in the gaps and work the standard out in a draft form; after which we would review it, and this is the discussion that I had. There was nothing more than that.

Senator ABOUREZK. And you didn't discuss with any official of the AGA their position?

Mr. JOHNSON. Whether there should be or should not be a standard; no, sir, I did not.

Senator ABOUREZK. And no one from AGA ever expressed to you what their position was on that standard?

Mr. JOHNSON. No, sir.

Senator ABOUREZK. Did you ever have a feeling that they might be opposed to the standard? Did you ever get that impression from any of them?

Mr. JOHNSON. I suppose that I did, yes, in some of the comments that came in during our review, who were also committee members of AGA, they did express themselves along this line.

Senator ABOUREZK. And how did they express themselves, for or against setting the standard?

Mr. JOHNSON. They were against it.

Senator ABOUREZK. Now, can you specifically tell me, who expressed themselves against that standard?

Mr. JOHNSON. Well, I believe this information has been submitted to the committee. I have it right here if you wish to go over it again.

Mr. CROWTHER. For the record—

Senator ABOUREZK. Excuse me, could I just finish here? I'd like to ask the question again. Do you recall which members expressed themselves against the standard?

Mr. JOHNSON. I would have to refer to the——

Senator ABOUREZK. That's fine, if you would like to.

Mr. JOHNSON. If you would give me some time.

Senator ABOUREZK. Sure. Did you want to say something while he is looking?

Mr. CROWTHER. I just wanted to indicate, Mr. Chairman, that for the record, as I recall it,—on the second ballot, on the rebalot which was required under ANSI rules—four AGA members voted in favor of the standard; four opposed it, and one abstained.

Senator ABOUREZK. So there were nine, there were a total of nine AGA members on that committee?

Mr. CROWTHER. That is correct.

Senator ABOUREZK. Now, how many members does that committee have?

Mr. CROWTHER. Forty, I believe.

Senator ABOUREZK. Total of 40?

Mr. CROWTHER. Forty-two.

Mr. JOHNSON. These are appliance manufacturers, but I believe Mr. Hanson, of the American Gas—representing the American Gas Association.

Senator ABOUREZK. These are members who expressed themselves against the standard?

Mr. JOHNSON. Yes.

Senator ABOUREZK. All right, Mr. Hanson of the American Gas Association, and who else did you name?

Mr. JOHNSON. In the interest of time, Mr. Chairman, I would be glad to submit this for the record.

Senator ABOUREZK. And what is that?

Mr. JOHNSON. This is a summary of the letter ballots for adoption of the standard, with the gentlemen's name, their company and their comments attached.

Senator ABOUREZK. And that is the total list of people who expressed themselves to you against the standard?

Mr. JOHNSON. Not to me. What I was referring to earlier was, this was a matter at the Z-21 Committee level. At my level, at the task force meeting level, we sent an initial draft out for review, and we got some comments back, which the task force reconsidered.

Senator ABOUREZK. All right. We will take that into the record at this time.¹

Now, to get back to the original question that got us into all this. Mr. Hart, I would like to ask you: If you are interested in saving natural gas, would it not be a good idea for the American Gas Association to come out very strong for the adoption of a standard so that such a device could be tested, and if found to be safe, marketed?

Mr. HART. Well, to go back just a little bit, let me say again that—and as proof of our interest in saving energy and making more efficient use of our energy—about 30 percent or better of our total research budget is spent in the area of improving the efficiency of gas-burning equipment and appliances.

This is apart from the amount of money that we spend on coal gasification and that type of thing, what we call utility research

¹ See p. 633.

budget, is about 70 percent of that budget. So, we are interested in conserving energy. Now, whether or not we should come all out for the adoption of a standard, as an association, I do not know. We have not done this.

We are certainly in favor of a voluntary standards program, but we leave it in the hands of the Z-21 Committee, through their deliberations, and their objective studies, and through all the inputs that are made to the committee when it goes out for consideration—very broad dissemination, whether or not the standard ought to be prepared. If the standard is prepared—and as Mr. Crowther said, four members voted for it, four voted against it, and one abstained from voting. Now for me to say we ought to strongly support standards for every kind of a device going, I do not think I am capable of saying that.

Senator ABOUREZK. I did not ask you about every kind of device. I guess what I asked you was that, if given the allegations, and even some evidence, and the fact that Vent-O-Matic does save gas, in the face of that evidence, would it not be a good idea for AGA to come out strongly in support of setting a standard for automatic dampers?

Mr. CROWTHER. Mr. Chairman, there is also some evidence that it causes dangerous conditions.

Senator ABOUREZK. Let Mr. Hart respond to the question.

Mr. HART. There is just as much evidence, to me, frankly, that this device can be installed incorrectly; it could become an item on the shelf down at Hechingers, you know, and a lot of us go down there and buy stuff to put in our houses ourselves.

The mere fact that Mr. Woolfolk, and I credit him for it, says this should be installed only by a licensed man, does not mean that it always will. Now, we are interested in protecting the safety of the user of our energy.

We also question the extent of the savings that he has professed that this equipment will make.

Senator ABOUREZK. How do you know, unless you have set a standard and tested it?

Mr. HART. The standard has nothing to do with the rate of savings that it will make.

Senator ABOUREZK. On safety, how do you know anything about the safety of it until it has been tested and you cannot test it unless you—

Mr. HART. I agree. We tested this device and certified it when it came in as an integral part of a complete furnace unit back in 1968.

Senator ABOUREZK. Yes, I know that.

Mr. HART. About which incidentally, there is an error in your news release which says it took 6 years for that to happen. That happened at the very beginning, Mr. Chairman.

Senator ABOUREZK. All right. I will accept responsibility for that error. Now, I guess we have to get back to whether or not AGA is trying to prevent the marketing and installation of this device as a retrofit unit.

Mr. HART. AGA is not trying to prevent the marketing and sale and installation of any device, providing it is safe and meets an adopted national standard. This equipment does not.

Senator ABOUREZK. How do you know it does not?

Mr. HART. Because it has not been subjected to a standard. We tried to get a standard prepared. A committee was organized and they voted not to come up with a standard.

Senator ABOUREZK. You are not saying we tried, like AGA tried, you just said you did not try.

Mr. HART. Well, it was suggested; certainly brought to the attention of the Z-21 Committee. How, I don't know, I never heard of the thing until, as I said, in December or, in October 1972. There had been a lot going on before that.

Senator ABOUREZK. That is almost 4 years since you first heard of it, and you still have really not taken a position in favor of even setting a standard for this device?

Mr. HART. Not publicly have we taken any position. Personally, I wish there was a standard for this unit so we would know whether it was right or not.

Senator ABOUREZK. That does not do much for—

Mr. HART. That did not agree with the Z-21 Committee.

Senator ABOUREZK. When I first ran for Congress in 1970, for the House of Representatives, I was a Democrat running in a very strong Republican district. A Republican friend of mine, said, well I would sure like to help in your campaign. And I said well, how would you like to be chairman of the Republican's for Abourezk campaign committee. He said fine, I will agree to do that because I want to help you. I said well, we will get a public press release prepared for you and we will issue it, announcing that you are chairman of the Republicans for Abourezk campaign committee.

Well, he said you cannot use my name in public. I am willing to be chairman of it, but you cannot tell anybody.

Now, to me, that is the same thing as you are saying. That you take a private position in favor of it, publicly you do nothing. The results are that the device does not get marketed and consequently, there is no saving of fuel by virtue of the use of this device.

What I am interested in determining is, that, if AGA really wants to save fuel, why does it not take a good positive position? Because there really is evidence that a vent damper saves fuel. You have heard it here this morning.

Mr. HART. Well, I have not seen any concrete evidence, I might say. I have heard it, yes. And there have been some tests on it, not scientific tests. There are some tests under way now on these types of devices to find out what they will do, and we are very much interested in them.

Senator ABOUREZK. You are so interested that for 4 years after you first heard about it, nothing has happened.

Mr. HART. That is not within my power to make something happen on the question of a voluntary standard, Mr. Senator.

Mr. CHUMBRIS. Mr. Chairman, before you start the other questioning, may we have in the record the 40 different members of this group, because I just glanced through the document you just gave us and it had the United States Department of the Army and the Navy and many Government agencies constitute the 40 members that voted on this issue.

Senator ABOUREZK. Yes, that will be accepted in the record.

Mr. CROWTHER. Mr. Chumbris, that is attached as attachment B¹ to Mr. Hart's and Mr. Hodgdon's prepared statement.

¹ See p. 596.

Mr. CHUMBRIS. That is fine.

Mr. HART. I would like Mr. Hodgdon to complete his statement if he might be permitted to.

Senator ABOUREZK. Certainly, go ahead.

Mr. HODGDON. The further thing that I want to say on continuing my statement, is that the certificates issued by AGA have two pages and, as a matter of fact, an attachment which is a complete description of the appliance. And we did note that the second page regarding specific appliance covered by the certificate—covers for the forced air furnaces the authorized clearances, the input-output ratings, the external static pressures, and so forth, so that the second page of the Save-Fuel certificates that Mr. Woolfolk was bound to have got, clearly delineated that the appliance was certified as being a furnace, and afterwards, I think we heard from at least one distributor of Woolfolk's equipment with respect to an inherent safety hazard involving a slow-acting valve, which I believe this subcommittee discussed this morning, did they not? I thought they did—involving slow-acting valves, no notice of which was given in the Vent-O-Matic operating instructions. When this was brought to Save-Fuel's attention, the needed information was supplied in a reprinted brochure.

Most of the inquiries that we received with respect to this device, were occasioned by a press release and advertising literature issued by Save-Fuel, which erroneously stated that the damper had been certified. And in each case, we responded with a correct statement of the facts, setting forth that the device itself had not been certified but only a series of furnaces on which it was installed as an integral part, and pointing out that AGA had done nothing to test any claims as to fuel savings.

When the error in Woolfolk's advertising literature was pointed out to him, he acknowledged the mistake and corrected the material.

Other inquiries received basically the same response. There was never any question, either on the part of Mr. Woolfolk, or the laboratory, that certification was for the three furnaces and not for the damper device, and this was the only general information communicated by AGA.

Let me comment briefly on the claimed savings that can be obtained with this device. In the first place, it is extremely difficult to measure such savings because many factors, such as the general construction of a house, the numbers of times exterior doors and windows are opened and closed, the effect of winds, orientation of the house to the sun, and other factors, make comparison between any two actual houses misleading.

As a practical matter, an appreciable amount of the heat produced by the combustion of natural gas must be used to carry the flue products—water vapor and carbon dioxide—away. If this is not done, corrosion of metal parts and improper combustion leading to production of carbon monoxide, which is toxic, can result.

Since a forced air furnace must have a thermal efficiency of 75 percent as prescribed in the applicable standards, this does not leave much heat to save. The Institute of Gas Technology has estimated that a flue damper device on a furnace will be ineffective if there is a gas water heater with a flue that is not similarly equipped. If both have them, and they must be separate installations, the maximum

estimated savings is about 9 percent. Copies of this report have previously been furnished to the staff of the committee. Even these savings have to be weighed against the cost of the devices and their installation, especially since water heaters do not generally have electric hookups readily available, and the added hazards which such a device can impose, especially if self installed.

I am aware that this subcommittee will be hearing tomorrow from a number of witnesses from Germany. AGA is certainly aware that in Germany, Austria, and Switzerland, draft damper devices are required, and some 2 million, primarily of the thermally operated variety are in use. But it should be pointed out to the subcommittee that in the United Kingdom and France, and we believe in other European countries, as well, such draft dampers are neither required nor forbidden, but are used very little because the authorities concerned are dubious about their safety.

In addition to the usual reservations about the possibilities of damper failure in the closed position, increased flue gas spillage in the living areas, corrosion problems, and the like, they are concerned about the effect of flue downdrafts closing the damper and positively preventing the establishment of updraft in the chimney.

In the Netherlands, and probably in some other countries, use of the draft dampers is forbidden for the above reasons. But, as in the United States, careful investigations are in progress to determine what real economy may result from their use, and if they can be used without diminishing the existing level of consumer safety. Thank you.

[The summarized portion of Mr. Hodgdon's prepared statement follows. Testimony resumes on p. 600.]

PREPARED STATEMENT OF FRANK E. HODGDON, VICE PRESIDENT, AMERICAN GAS ASSOCIATION

Thank you, Don. I have, attached to this statement, as Attachment A, a full description of our laboratories' certification program, detailing the activities of our laboratories in the sponsoring of standards preparation, testing of appliances and accessories, and follow-on inspection to determine compliance of production with the certified design. I would ask this to be made a part of the record of these proceedings. I have also supplied for the use of your staff copies of the A.G.A. directory for July, 1972, and a copy of the material which is presently given to each new member of the ANS standards committees and their subcommittees.

The major thrust of the A.G.A. program, since its inception in 1925, has been the safety of the gas customer; we have also organized it so as to deal with each manufacturer in the same equal and impartial manner. We believe that what we are doing complies with these goals, and that we assisted and cooperated with Mr. Woolfolk to the full extent of our abilities.

With respect to the events complained of by Mr. Woolfolk (as described in the letter of invitation which we received from your subcommittee) we, of course, have a quite different perception. Let me first comment on the claim that the "Z21 Committee and the A.G.A. laboratory have unreasonably refused to develop a standard and a test methodology which would allow his product to be certified as a retrofit unit". In point of fact, substantial efforts were made to develop such a standard, and one in fact was drafted by a Task Force of the Z21 Committee and submitted to the parent committee. Throughout the process, Mr. Woolfolk was given due notice of every meeting of the Z21 Committee and the Task Force, and, as was his right, permitted to attend them all and make any statements which he felt appropriate. He availed himself of these opportunities and was heard. It is beyond question that he received procedural "due process" in the standards making process, and the only other question must be whether he was accorded substantive "due process".

Contrary to Mr. Woolfolk's second allegation that "furnace manufacturers and utility companies have disproportionate representation" on the committee, the Z21 Committee is made up of one-fourth utility representatives (appointed by A.G.A.), one-fourth appliance and equipment manufacturers representatives (appointed by Gas Appliance Manufacturers Association), and the balance, or one-half of the committee, representative of the public interest. A full list of the Z21 Committee at the time is attached to this testimony—as you can see, the public interest representation includes insurance groups, trade associations in related industries, an engineer of the inspection authority of the City of Los Angeles, and employees from the following six Federal agencies: the General Services Administration, the Naval Facilities Engineering Command, the U.S. Department of Health, Education and Welfare, the Federal Housing Administration, and the Bureau of Mines. These last seven members are specifically charged with responsibility for the safety and general welfare of people; six of them voted against approving the draft standard while one abstained.

In point of fact, many of the manufacturers and utility representatives involved either voted for the standard or abstained, and it was primarily the votes of the public interest representatives that caused the standard to be rejected, for safety reasons.

Among other things, these people voting in 1974 were aware of the action of the Canadian inspection authorities (the persons responsible in the ultimate analysis for the safety of Canadian gas consumers) in banning these devices from Canada in 1971. I should note that A.G.A. was not aware of this action of the Interprovincial Inspectors until the Jack Anderson article appeared in October 1972, at which time we inquired of the Canadian Gas Association as to the status of the device in Canada.

Thus, Mr. Woolfolk's complaint must be only that his arguments were not successful. It should be noted that at least one other manufacturer which wished to manufacture a mechanical damper device appeared before the Z21 Committee and supported the concept that such equipment should not be sold on a retrofitted basis, but only to original equipment manufacturers. A series of gas boilers and a series of gas furnaces, equipped with this manufacturer's product, have been submitted to the Laboratories and are currently being tested.

Lastly, according to your letter, Mr. Woolfolk believes that "A.G.A. used its influence to prevent use of his product . . ." and we also deny this allegation. From the outset, A.G.A. has sought to be of whatever assistance it could to Mr. Woolfolk. When Save-Fuel representatives first came to our Laboratories, they brought in a very crude bi-metallic device about which at least one safety complaint had already been received. A.G.A. employees met with them and suggested that they utilize an electrically activated mechanical device to accomplish the purpose, pointing out at the same time that this device would not be acceptable for certification on its own since there was no standard which covered it. Thereafter, when Save-Fuel created such a device, it was A.G.A. Laboratories personnel who suggested that while A.G.A. could not certify it as an independent device, a furnace which had the equipment installed as an integral part could be tested and certified under the furnace standard. This was in fact done for a series of three furnaces.

The A.G.A. Laboratories conducted tests on a series of forced air furnaces equipped with the Vent-O-Matic device as an integral part at the request of, Southwest Manufacturing Co., Aurora, Missouri. After satisfactory completion of tests, Southwest further requested that A.G.A. issue a dealer extension of the entire furnace with the device as an integral part to a Save-Fuel Corporation with the trade name "Vent-O-Matic". At the time that this action was taken A.G.A. was not aware of Save-Fuel's intentions. As a matter of fact, in accordance with Dealers Listing Agreements completed by A.G.A., Southwest and Save-Fuel jointly, Southwest was required to provide a furnace rating plate to be used on the extension models stating "Manufactured for Save-Fuel Corp." The certificates issued were always mailed directly to Southwest and all charges for A.G.A. services were billed directly to Southwest. The A.G.A. Directory of Certified Appliances and Accessories always listed Save-Fuel Corp. in the Central Heating Furnace section—including model numbers, input and output ratings and the trade name "Vent-O-Matic".*

The above are standard operating procedures and apply equally to all dealer extension companies who do not actually produce the appliance or accessory—such as Sears, J. C. Penney, Montgomery Ward and the like.

* Page 631 in the July, 1972 Directory.

[Mr. Hodgdon read the balance of his prepared statement. The attachments to his statement follow.]

Attachment A

AMERICAN GAS ASSOCIATION LABORATORIES' CERTIFICATION PROGRAM

The prime function of the A.G.A. Laboratories in Cleveland (Independence), Ohio, and Los Angeles, California is the application of nationally recognized standards in a voluntary certification program for gas appliance and accessory designs.

A.G.A.'s program includes the following three areas of activity—(a) Sponsorship of standards writing, (b) Conduct of Certification testing, and (c) Follow-up inspections—each of which will be described more fully below.

(A) SPONSORSHIP OF STANDARDS ACTIVITIES

Although the A.G.A. Laboratories will certify gas equipment as complying with any applicable nationally recognized standards, almost all of the standards used in the A.G.A. certification program are the gas equipment standards developed by American National Standards Committees for which A.G.A. is the secretariat. The American National Standards Institute (ANSI) is the nationally recognized coordinator of voluntary standards development in the United States through which some 180 voluntary organizations establish and improve national consensus standards. ANSI procedures provide that all interests, including that of the public, must be represented in standards activities conducted under ANSI auspices. Central to ANSI acceptance procedures for standards is the development of a consensus of affected interests, which provides for due process in the drafting of a standard with the right to appeal actions at several levels of review, establishing confidence in and credibility for the standards approved. ANSI provides three methods for developing evidence that a consensus exists favoring the approval of the American National Standards—the canvass method, the existing standards method and the standards committee method. The method under which A.G.A. supports the development of gas equipment standards is the standards committee method.

Under this method, the membership of an American Standards Committee is comprised of organizations having concern with and competence in the particular field of the standards endeavor. A competent organization is designated to serve as secretariat of the committee and carries out the administrative work of the committee. Permanent subcommittees may be established to aid the committee in the development of standards but, since subcommittee personnel do not ordinarily constitute a consensus making group, subcommittee actions are purely advisory to the main committee.

The American National Standards Committee pertinent to this hearing is ANSC Z21 "American National Standards Committee on Performance and Installation of Gas-Burning Appliances and Related Accessories." A.G.A. has accepted the role of secretariat of this committee and absorbs the costs for providing the administrative and technical services of the Z21 standards development program. This effort is completely divorced from other Association activities, and the actions of the Z21 Committee, including the writing of the standards themselves, are independent at both ANSI and A.G.A.

The Z21 Committee is comprised of members classified as producers, distributors and retailers, and general interest. Specifically, the Z21 roster at this time includes 40 individuals representing 22 member organizations. Among these, A.G.A. has nine representatives (or less than one-fourth) of gas utility companies from various areas of the United States; the Gas Appliance Manufacturers Association has nine representatives of manufacturers (also less than one-fourth) of the various types of equipment covered by the Z21 series of standards, and other members include eight national and regional governmental representatives, two national insurance groups, and twelve other interested organizations.

Under this Z21 process, its subcommittees meet and consider suggestions from anyone regarding the Z21 standards. Any interested person may appear and participate at these meetings or those of the parent committee. If, after consideration, the subcommittee believes the standard should be revised or a new standard prepared, staff will prepare and distribute a review and comment text detailing the proposals of the subcommittee concerned to all those known to have an interest in the standard, including, of course, the Z21 Committee members. Depending upon the particular standard, this distribution will usually range from about 300 to 650 copies.

All comments received are considered by the subcommittee at the second meeting, at which the proposals may be accepted or modified in line with the comments. The proposal may also be rejected as a result of adverse comments. The proposals which are accepted are recommended to the Z21 Committee. If the Z21 Committee approves the proposals, the Secretariat will submit the revisions to ANSI.¹

When a proposed standard developed by the committee is approved for submission to ANSI, A.G.A., as secretariat, must transmit to ANSI for consideration of approval as American National Standard. The first step in this consideration is to expose the proposal to a 60-day public review period, a notice of which is published in ANSI's bi-weekly publication, "Standards Action." During this period, proposed standards covering consumer products are also reviewed by the Standards Screening and Review Committee (SS&RC) of ANSI's Consumer Council.

The ANSI Board of Standards Review (BSR) will then review the proposed standard, including all comments received and the responses thereto. If, after considering all aspects of the proposal, the BSR agrees that a consensus exists favoring the proposed standard, it is adopted as American National Standard. Throughout this standards development process from subcommittee to ANSI level, there are opportunities at each level for objections to be registered, considered and resolved.

(B) TESTING FOR CERTIFICATION

Certification of a unit's design begins in the Laboratories' Testing Department. When a manufacturer wishes to submit an appliance or accessory for certification, he enters into a contract with the Laboratories for these services and contacts the Testing Department to establish a test date. Upon receipt of the equipment, it is the responsibility of the Testing Department to accumulate test data on each model submitted while conducting evaluation tests to determine that the equipment complies with the provisions of applicable nationally recognized standards.

The actual testing program is divided into construction, performance and description. The construction portion of the program is conducted first to determine that the equipment is manufactured in accordance with the minimum construction specifications contained in the applicable standard and in accordance with reasonable concepts of safety, substantiality and durability. While most of the Z21 standards are primarily performance-oriented, some matters such as sharp edges, workmanlike assembly, accessibility of serviceable parts, material thickness and composition, compatible gas flow control and ignitions systems, comprehensibility and accuracy of installation and consumer instruction manuals supplied with the equipment, and markings pertinent to the installation, operation and capacity of the equipment must be taken into account.

Next, various safety and performance tests are conducted under varying inlet test gas pressures, electrical supply voltages and temperatures. Modification of an equipment design may be made by the manufacturer during the course of the testing program, in which case performance tests which could be affected by the modification are rerun. Some of the typical performance tests specified in gas equipment standards include tests for acceptable combustion, operation of ignition systems, determination of thermal efficiency, heating element temperatures, and acceptable temperatures for combustible construction installed adjacent to the equipment at distances specified by the manufacturer and marked on the equipment.

After completion of all test work to determine compliance with the applicable construction and performance provisions of the pertinent standards, the description section complies a complete descriptive record of the equipment including any modifications effected by the manufacturer during testing.

Following satisfactory completion of test work by the Testing Department on an appliance or accessory submitted for design certification, the Certification Services Department begins its activities for the Laboratories' certification program. All test data on a particular model are reviewed by the engineers in the Certification Services Department for accuracy and completeness to determine compliance with the applicable standard. The necessary billing information for the testing program is sent to the Accounting Department and a report covering all phases of the test program is prepared for the manufacturer. If it has been established at this point that the appliance or accessory complies with all provi-

¹ If a letter ballot is used and negative votes received, ANSI rules require the circulation of the negative votes (which must be accompanied with a reason) and the rebal-
lotting of the entire committee.

sions of the standard, a certificate is issued, and the model number is listed in the Laboratories' "Directory of Certified Appliances and Accessories."

Frequently, however, test reports will describe construction criticisms of other deficiencies such as the lack of marking, installation instructions and other information required by the standards which must be corrected before design certification can be granted. Following-up manufacturers' proposed corrections is an important part of a CSD engineer's responsibility.

These engineers respond to all requests from manufacturers for changes in construction or equipment and controls on appliance and accessory designs which are already certified, evaluate manufacturers' replies to the Inspection Department's reports covering plant inspections, and reply to queries from gas companies, local inspectors, regulatory authorities, installers and others regarding the certification program, standards and other industry-related problems.

Any manufacturer aggrieved by any ruling of the Laboratories may appeal such ruling to the Laboratories Managing Committee, a group of senior executives from A.G.A. member companies charged by the A.G.A. Board of Directors with responsibility for Laboratories' policy. If the manufacturer is not satisfied with its decision, the contract provides for the submission of the matter to arbitration under the rules and procedures of the American Arbitration Association.

Under the Laboratories' certification program, a revision to a standard, on its effective date, becomes a requirement for all equipment manufactured after that date. The prime factor in this revised program is the establishment of a date following which all certified equipment must comply with the standard. The Laboratories are being aided in the determination of such an effective date through the recommendations of the particular standard's supervising subcommittee, since manufacturing expertise as well as utilization knowledge and information as to consumer needs are available to the subcommittees.

(C) FOLLOW-UP INSPECTIONS

The prime objective of the Inspection Department, the third section of the Laboratories' certification program, is to verify that manufacturers of design certified appliances and accessories continue to produce units conforming with the design of the prototype tested at the Laboratories.

Inspectors from the Cleveland and Los Angeles Laboratories currently visit over 375 companies on a routine basis. One visit each year is announced to the manufacturer in advance and one or more unannounced visits are completed during the remainder of the year. Some inspections result from reports from utilities, consumers of others on field problems or defects. One inspection is announced since manufacturers do not produce all their design certified equipment simultaneously at all times and it is necessary to inspect all equipment for which certification renewal is desired.

In addition to the scheduled inspection, unannounced inspections are made at each plant producing certified equipment at least once a year and frequently more often. The frequency of such inspections is based upon past experience with the manufacturer, A.G.A.'s analysis of the effectiveness of the manufacturer's quality control program and upon information received from the field. In specific cases, unannounced inspections have been made eight or more times a year, and the Inspection Department has on occasion insisted on one or more days' observation of total production in order to determine that a manufacturer was able to effect satisfactory quality control.

If, as a result of inspection or of any of the information received through the various channels described, it is determined that production models do not conform to the prototype tested by the Laboratories, A.G.A. will require correction. In serious cases, A.G.A. may revoke its certification, thereby terminating the manufacturer's authority to use the "Blue Star" certification seal or listing symbol. A.G.A. may also compel the manufacturer to find the non-conforming equipment in the field and either remove the certification seal or listing symbol or modify the units to conform with the design certified. A notice of revocation may also be published in the A.G.A. Directory.

The Laboratories also augmented their factory inspection procedures in the early 1970's to include a mandatory quality audit program. This program not only requires conduct of special performance tests on control production at each factory visit but continuous or periodic audit test program by the manufacturer dependent of the performance tests involved. Inspectors review the manufacturer's procedures as well as copies of his written records of the results of his audit test program.

Membership List

April 10, 1974
2702

AMERICAN NATIONAL STANDARDS COMMITTEE Z21

E. O. Mittocks (CHAIRMAN) Consultant P. O. Box 403 Ponte Vedra Beach, Florida 32082	(IM)	Howard E. Brehm Corporate Director of Safety Whirlpool Corporation Research & Engineering Center Monte Road Benton Harbor, Michigan 49022	(GAMA)
W. L. Walls (VICE CHAIRMAN) Cases Field Service National Fire Protection Association 470 Atlantic Avenue Boston, Massachusetts 02210	(NFPA)	Rawlings Brewer Assistant to Vice President of Engineering Emerson Motor Division Emerson Electric Co. 8100 Florissant Ave., Station 2820 St. Louis, Missouri 63136	(NEMA)
Jack Allen International Association of Plumbing & Mechanical Officials 5032 Alhambra Avenue Los Angeles, California 90032	(IAPMO)	J. H. Thornbery (Alternate) 5059 North Diversey Boulevard Milwaukee, Wisconsin 53217	
Willard L. Amann Operating Manager, Central Plants Houston Natural Gas Corporation P. O. Box 1188 Houston, Texas 77001	(SBCC)	A. M. Castello Vice President, Engineering Dunham-Bush, Inc. Harrisonburg Division P. O. Box 979 Harrisonburg, Virginia 22801	(GAMA)
D. M. Amundson Senior Vice President, Operations and Engineering Indiana Gas Company 1630 N. Meridian Street Indianapolis, Indiana 46202	(A.G.A.)	Robert H. Chaffee Executive Vice President Watts Regulator Company P. O. Box 628 Lawrence, Massachusetts 01842	(GAMA)
Sterling E. Apgar, Jr. Apgar Heating-Cooling Corp. P. O. Box 125 Bound Brook, New Jersey 08805	(NESCA)	J. S. Chalmers Warren Petroleum Company P. O. Box 1589 Tulsa, Oklahoma 74102	(API)
John J. Bacon Vice President - Customer Relations Boston Gas Company 2900 Prudential Tower Boston, Massachusetts 02199	(A.G.A.)	A. A. Mulliken, Jr. (Alternate) American Petroleum Institute Division of Refining 1801 K Street, N. W. Washington, D. C. 20006	
Walter Blanck, Jr. Asst. Technical Director Association of Home Appliance Manufacturers 20 North Wacker Drive Chicago, Illinois 60606	(AHAM)	W. L. Clayton Chief Engineer United Gas, Inc. P. O. Box 2628 Houston, Texas 77001	(A.G.A.)
John Weizeorick (Alternate) Asst. Technical Director Association of Home Appliance Manufacturers 20 North Wacker Drive Chicago, Illinois 60606		C. F. Coleman Vice President, Distribution Operations Mountain Fuel Supply Company P. O. Box 11368 Salt Lake City, Utah 84111	(A.G.A.)

Membership List (Continued)

Nicholas DeHaas Office of Standards & Quality Control (FMEH) General Services Administration Federal Supply Service Washington, D. C. 20406	(GSA)	Walter H. Johnson Vice President, Technological Services National LP-Gas Association 79 West Monroe Street Chicago, Illinois 60603	(NLPGA)
Warren Eichorn Chief Engineer - Heating Duo-Therm Division of Motor Wheel Corporation 509 South Poplar Street LaGrange, Indiana 46761	(GAMA)	Sam K. Jolly Assistant Chief Engineering Services Branch Dept. of Health, Education, & Welfare Public Health Center Center for Disease Control Atlanta, Georgia 30333	(HEW)
Nat L. Eure Department of Housing and Urban Development Federal Housing Administration Washington, D. C. 20412	(FHA)	Anthony E. Lavelle Gorman-Lavelle Plumbing Company 3459 East 52nd Place Cleveland, Ohio 44127	(MCAA)
Louis H. Flanders, Jr. Chief Heating Engineer Factory Mutual Research Corporation 1151 Boston-Providence Turnpike Norwood, Massachusetts 02062	(FM)	William C. Abernathy (Alternate) Mechanical Contractors Association of America, Inc. 5530 Wisconsin Ave., Suite 750 Washington, D. C. 20015	
Chas. B. Gamble, Jr. Executive Vice President Alabama Gas Corporation 1918 First Avenue North Birmingham, Alabama 35203	(A.G.A.)	Edmund R. Lord Mechanical Engineer Food Systems Equipment Division General Equipment & Packaging Laboratory U. S. Army Natick Laboratories Natick, Massachusetts 01760	(U.S. Army)
Joseph Grumer Project Coordinator, Dust Explosions U. S. Department of the Interior Bureau of Mines 4800 Forbes Avenue Pittsburgh, Pennsylvania 15213	(B of M)	John M. Lyle, Manager Central Engineering Services Research Division Carrier Corporation Carrier Parkway Syracuse, New York 13201	(GAMA)
David F. Hansen President Pennsylvania Gas & Water Company 30 North Franklin Street Wilkes-Barre, Pennsylvania 18701	(A.G.A.)	W. D. Malmstedt Engineer American Insurance Association Engineering & Safety Department 85 John Street New York, New York 10038	(Amer. Ins. Assn.)
Richard P. Harper Secretary-Treasurer Incinerator Institute of America 2425 Wilson Boulevard Arlington, Virginia 22201	(IIA)	William V. McDonnell Director of Marketing Residential Division Honeywell Inc. 2701 Fourth Avenue South Minneapolis, Minnesota 55408	(GAMA)

Membership List (Continued)

2704

- Henry H. Miller (A.G.A.)
Vice President, Distribution
Baltimore Gas and Electric Company
P. O. Box 1475
Baltimore, Maryland 21203
- Harold J. Moss (GAMA)
Vice President, Engineering
Magic Chef, Inc.
740 King Edward Avenue, S.E.
Cleveland, Tennessee 37311
- Robert W. Newell (GAMA)
Vice President-Product Development
& Research Engineering
Heating & Air Conditioning Division
Rheem Manufacturing Company
5600 Old Greenwood Road
Fort Smith, Arkansas 72901
- Edward A. Norman (GAMA)
Consultant
Consolidated Industries Corporation
1513 Essex Road
Columbus, Ohio 43221
- Lester R. Pickup (A.C.A.)
Manager of Customer Services
Southern California Gas Company
P. O. Box 3249, Terminal Annex
Los Angeles, California 90051
- Frederick J. Reed (ARI)
Director of Engineering
Air-Conditioning and Refrigeration
Institute
1815 North Fort Myer Drive
Arlington, Virginia 22209
- L. E. Rogers, P.E. (NFEC)
Head, Standardization &
Technical Data Branch
Dept. of the Navy, Code 0434
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332
- Willis E. Strong, P.E. (Alternate)
Mechanical Engineer
Dept. of the Navy, Code 711.2
Naval Construction Battalion Center
Standardization & Data Management Div.
Davisville, Rhode Island 02854
- W. J. Smith (UL)
Associate Managing Engineer
Heating, Air-Conditioning &
Refrigeration Dept.
Underwriters' Laboratories, Inc.
P. O. Box 247
Northbrook, Illinois 60062
- S. Mazzoni (Alternate)
Managing Engineer
Heating, Air-Conditioning &
Refrigeration Dept.
Underwriters' Laboratories, Inc.
P. O. Box 247
Northbrook, Illinois 60062
- Ralph D. Sparkman (APGA)
Gas Transmission and
Distribution Engineer
Gas Engineering Department
Memphis Light, Gas & Water Division
P. O. Box 388
Memphis, Tennessee 38145
- John A. Spence, Manager (CGA)
Approvals and Codes
The Consumers' Gas Company
400 Coventry Road
Ottawa 7, Ontario, Canada
- Robert C. Swagler (A.G.A.)
Vice President - Operations
The Peoples Natural Gas Company
Two Gateway Center
Pittsburgh, Pennsylvania 26333

COMMITTEE MEMBER AFFILIATIONS

2705

A. G. A.	American Gas Association
AHAM	Association of Home Appliance Manufacturers
Amer. Ins. Assn.	American Insurance Association
APGA	American Public Gas Association
API	American Petroleum Institute
ARI	Air-Conditioning and Refrigeration Institute
B of M	U. S. Bureau of Mines
CGA	Canadian Gas Association
FHA	Federal Housing Administration
FM	Factory Mutual System
GAMA	Gas Appliance Manufacturers Association
GSA	General Services Administration
HEW	Department of Health, Education, and Welfare
IAPMO	International Association of Plumbing & Mechanical Officials
IIA	Incinerator Institute of America
IM	Individual Member
MCAA	Mechanical Contractors Association of America, Inc.
NEMA	National Electrical Manufacturers Association
NESCA	National Environmental Systems Contractors Association
NFEC	Naval Facilities Engineering Command
NFPA	National Fire Protection Association
NLPGA	National LP-Gas Association
SBC®	Southern Building Code Congress
UL	Underwriters' Laboratories, Inc.
U. S. Army	United States Department of the Army

Senator ABOUREZK. I will ask Mr. O'Leary to ask a few questions here.

Mr. O'LEARY. Mr. Hart, in your statement, you indicate that one of your member companies is conducting field test programs of the value and safety of retrofitting heating systems with flue damper devices. Would you identify that company?

Mr. HART. Yes, it is Michigan Consolidated Gas Co., and this is just one phase of a very broad program they are looking at in retrofitting and a number of different things.

Mr. O'LEARY. Is this with a Vent-O-Matic device or some other—

Mr. HART. I do not know what device it is.

Mr. O'LEARY. You indicate in your statement that in the fall of 1972, you spent a good deal of time in the city of Memphis, and you make reference to a discussion with some individuals at the Memphis Light, Gas, & Water Division?

Mr. HART. Yes.

Mr. O'LEARY. You said:

We did discuss the Vent-O-Matic device and the Anderson article. The men with whom I talked indicated to me they did not believe that the Anderson article or the various statements put out under the name of the Memphis division by one of their lower level employees represented the true attitude of the company.

Do you recall who those men were?

Mr. HART. Yes, there was Mr. Henze, the president, and Grady, who at that time I think was his assistant—I do not recall his exact title—just those two individuals, and it was very shortly after the Anderson article, and the article in the Memphis paper that was referred to this morning. I think it was a Mr. Hancock wrote the article in the Memphis Press Scimitar.

Mr. O'LEARY. I believe the Hancock article appeared on December 21, 1972.

Mr. HART. Well, then I am in error, because it could not be the Hancock article. It had to be the Anderson article, because I was all through down in Memphis about the middle of November at that time. It was some time in there. It was a very casual discussion with these two gentlemen and among other things, this came up.

Mr. O'LEARY. I assume this discussion took place at Memphis Light, Gas, & Water?

Mr. HART. That is right, in Mr. Henze's office.

Mr. O'LEARY. Now, to the best of your recollection, just for the record, what was said during that conversation?

Mr. HART. Well, I do not recollect much of anything that was said. I was just paying my respects to them and mentioned the device, since this was a Memphis concern, and since it got national attention in the Anderson article; I had the impression from both of those gentlemen that they really did not know very much about the whole subject. That it had been handled somewhere further down in their organization.

Mr. O'LEARY. But at the time you talked to them you were aware that the device was in use in Memphis?

Mr. HART. According to what I had heard—I guess it was through the Anderson article. I have not read it since then, I have not briefed myself on it.

Mr. O'LEARY. As a result of the Jack Anderson article, did the AGA issue a press release?

Mr. HART. I believe we did. We had a lot of correspondence with a lot of people. Most of it directed up here on Capitol Hill.

Mr. O'LEARY. I assume the thrust of that press release was to deny the allegations of stalling or whatever it was?

Mr. HART. Oh, certainly.

Mr. CROWTHER. We would be glad to furnish a copy of it, Mr. O'Leary, for the record if you want it.

Mr. O'LEARY. Please.

Mr. CROWTHER. I do not have one right with me, but I will send one.¹

Mr. O'LEARY. The article that appeared in December 1972, Mr. Hancock's article, of course, the last paragraph of that article quotes Mr. Taylor as saying "L. G. & W. is all for the damper. We know that it is fully tested and ready for use and that it is completely safe." Did not the appearance of this article place the American Gas Association in a somewhat embarrassing position?

Mr. HART. I beg your pardon. I did not catch the first word. Did not the what?

Mr. O'LEARY. The appearance of this second article in the Memphis press, quoting Mr. Taylor.

Mr. HART. Well, I would say I was surprised at his quotation there. I have never discussed the quotation with Mr. Taylor, but I would not say we were embarrassed by the article.

Mr. O'LEARY. You indicated that after the Anderson article appeared, you got a number of inquiries from Capitol Hill?

Mr. HART. Yes.

Mr. O'LEARY. Did the same thing happen after the appearance of the Hancock article?

Mr. HART. Perhaps they did, I do not recall, it was stretched out over quite a few months.

Mr. O'LEARY. Mr. Hart, at the time the position paper was being formulated by Memphis Light, Gas, & Water in January of 1973, a memorandum from Mr. Carl Crawford of Memphis Light, Gas, & Water to Mr. Grady says, "I recommend you send a copy of this under cover of your letter to Don Hart. You may also offer to send sufficient copies for him to mail to all Congressmen who have badgered his office about the newspaper story here."

Were you in fact being badgered by Congressmen as a result of these two articles?

Mr. HART. I would not call it badgering, no. We had legitimate inquiries from these people. We felt sure that there was some campaign going on to bring this to their attention—in fact, we considered probably, maybe a form letter reply, we had so many.

Mr. O'LEARY. Mr. Hart, I believe that is a copy of Mr. Grady's letter to you with a copy of the Memphis Light, Gas, & Water position paper attached to it?

Mr. HART. Yes.

Mr. O'LEARY. Did you ask for a position paper from Memphis Light, Gas, & Water?

¹ See p. 639.

Mr. HART. I did not ask for a position paper. Perhaps it was after the Hancock article and the quotations that it contained, that I was curious and asked Grady what was their position on it. I certainly did not suggest that they develop a position paper.

Mr. O'LEARY. Do you note that the letter to you from Mr. Grady says—

Mr. HART. Says on several occasions we have discussed the apparent confusion on where the division stands.

Mr. O'LEARY. Does that refresh your recollection as to whether or not there was more than this one conversation in Mr. Henze's office?

Mr. HART. It really does not. I do not recall, during that time, that I was down there but one time at their office. It is entirely possible that there could have been another casual conversation and I think in a rather light vein. "You know I read this Hancock article, what do you fellows feel about this thing?" Because, frankly, in that first meeting with them, I got the impression that neither one of them knew a whole lot about it, but at the same time did not support the position of this retrofit type of damper.

Mr. O'LEARY. Looking at that letter and the Memphis Light, Gas, & Water position, does that perhaps refresh your recollection as to whether or not there were any additional conversations?

Mr. HART. I do not recollect. I am sure there may have been conversations with somebody in American Gas offices and between Memphis, I do not know.

Mr. O'LEARY. After you got this position paper from Memphis—well, let me ask you this question: Did you get a draft of this?

Mr. HART. You mean position papers?

Mr. O'LEARY. Yes, sir.

Mr. HART. I do not think I see too many position papers on various subjects. I do not recall though at the moment any. I get an awful lot of mail from an awful lot of member companies on a lot of different subjects.

Mr. O'LEARY. No, I am sorry. My question is—you obviously received that letter from Mr. Grady and at least one copy of the position paper, do you recall whether or not you received a quantity of—

Mr. HART. No, I do not recall. I do not recall. And if we did, it was somebody else who arranged for it, because my involvement in this whole issue was a very shallow one. I did not get into this question of—they had a standards committee going before I even knew about it, I think—subcommittee.

Mr. O'LEARY. Mr. Crowther, perhaps you would know this answer: My question is, did you receive a bunch of those and did you in fact send them to the offices of Congressmen and/or other people who had made inquiries?

Mr. CROWTHER. To the best of my knowledge, Mr. O'Leary, we did not receive any copies—any additional copies—of the position statement and to the best of my recollection, we did not particularly use it in our responses. Now, I would not want to, you know, be definitive on that, but that certainly is the best of my recollection.

It may well be that if we had a specific request from a Congressman from Tennessee, that we might have alluded to the position

statement. But we were not trying to make a case out of what Memphis had or had not done in the matter. We felt that it was a matter for them to come to a judgment on and, quite frankly, all we wanted to know was what that judgment was. And we were fully prepared to accept any judgment that they made in it. We just wanted it communicated to us.

And we feel this was a legitimate inquiry by a trade association to one of its members, on a matter of general concern at the time.

Mr. O'LEARY. Thank you, Mr. Chairman. I have no further questions.

Senator ABOUREZK. I have a few for Mr. Hodgdon.

Mr. Hodgdon, we were scheduled to receive testimony from a representative of the German group, DVGW—and I will not attempt the full pronunciation of that name. Unfortunately, Dr. Höppner is ill and he is unable to appear.

We had also hoped to hear from his assistant, Dr. Nuen, but the president of the DVGW, Mr. Ludwikowski, would not let him come.

Now, what relationship, if any, does DVGW have to the American Gas Association?

Mr. HODGDON. None, that I know of.

Senator ABOUREZK. Is it the German counterpart of the American Gas Association?

Mr. HODGDON. Yes. Now, there is—

Mr. CROWTHER. Mr. Chairman, I think, perhaps, I should speak to this matter because of the inferences that you are attempting, I believe, to draw here.

We received a Telex last week from Mr. Ludwikowski informing us that he had received this request. I telephoned him, and he said, "Should I appear? Would it be an embarrassment to AGA?" And I said, "Quite frankly, it would be a greater embarrassment if you did not appear." He said, "Well, I do not know whether we have anyone who can come over." And I said, "If that is the case, that is a judgment you have to make yourself."

So there was no attempt by AGA—AGA has no connection with the German Gas Association, other than our general course of international dealings, hopefully, for the benefit of all gas consumers.

Senator ABOUREZK. Well, the officials of both groups serve together on international standards-setting committees, do they not?

Mr. CROWTHER. That is right.

Senator ABOUREZK. Now, would it be fair to state that an American manufacturer of gas appliances must meet the standards set by the German group, in order to sell its products in Germany? Is that a fair statement?

Mr. HODGDON. I do not know, as to that. But, Senator, I think I ought to correct one misapprehension. The International Gas Union, which is the organization that I think we have been talking about here, to which both the German outfit and we, ourselves, and people all over the world belong, does not set standards.

That function is done in the United States by the International Standards Organization.

Senator ABOUREZK. If there is a German manufacturer, for example, would he have to have his product certified as meeting the applicable standards in order to sell in this country?

Mr. HODGDON. Unless he finds a new market, as did Mr. Woolfolk, in some cities, towns, or whatever.

Senator ABOUREZK. Now, Mr. Crowther, you just stated that you had a conversation with somebody from the German group. Who was that you spoke to?

Mr. CROWTHER. Mr. Ludwikowski.

Senator ABOUREZK. Did anybody else from AGA talk to Mr. Ludwikowski on the telephone?

Mr. CROWTHER. Not to the best of my knowledge.

Senator ABOUREZK. Mr. Hart, did you talk to him?

Mr. HART. I know him very well, but I didn't talk to him at all.

Senator ABOUREZK. You did not talk to him about these upcoming hearings? Did anybody else in your company?

Mr. HART. I know Mr. Crowther did, but—

Senator ABOUREZK. You are the only one?

Mr. CROWTHER. [No response.]

Senator ABOUREZK. And you stated that you advised him to send somebody over to testify, is that correct, Mr. Crowther?

Mr. CROWTHER. No, I didn't, Mr. Chairman. He said, "Would it be an embarrassment to AGA if someone came?" And I said, "It would be a worse embarrassment if someone did not come." I neither advised him on sending someone or not sending someone.

Senator ABOUREZK. Mr. Ray has talked with Mr. Ludwikowski. I'd just like him to repeat the—

Mr. RAY. I spoke with Mr. Ludwikowski. Perhaps he made a mistake, but he did say to me that he received our letter and he, in turn, spoke with Mr. Hart, because he knows him from the international committee.

Mr. HART. You or he are mistaken. I did not speak with him and I just asked Mr. Crowther a moment ago, I said, "Did we send him a wire in answer?" He said, "No, he sent a second wire." I do not recall whether we did or not but I did not talk to him.

Senator ABOUREZK. OK. Anything further?

Mr. JOHNSON, I guess you never got to read your prepared statement. I guess we're almost finished with the questioning now, but—

Mr. CROWTHER. Mr. Chairman, excuse me. Could I just note for the record that while we are always honored with Mr. Johnson's presence, that we did not ask for this panel to be so constituted. We are representing the American Gas Association here and Mr. Johnson is representing the National Liquefied Petroleum Gas Association and it was your subcommittee that asked us to appear as a group; I would just like that on the record.

Senator ABOUREZK. OK. The problem is I have to leave very shortly and am informed that Mr. Ray has two or three more questions to ask of you. You have given considerable testimony, so if you don't want to read your statement, you may submit it for the record and it will be printed in full.

Mr. JOHNSON. In the interest of time, Mr. Chairman, I would forego reading it.

Senator ABOUREZK. It will be put in the record. The questions that the staff has for you can be asked right now and then we can close out the hearings. We have all been here quite a long time.

Mr. JOHNSON. Incidentally, I am glad Mr. Crowther made the distinction here, because there are two separate organizations here. I am strictly here to represent the NLP.

Senator ABOUREZK. I have never gone under the theory that all gas and oil men look alike. I just want you to know that. You do look different, some of you.

[The prepared statement of Mr. Johnson follows. Testimony resumes on p. 607?]

PREPARED STATEMENT OF WALTER H. JOHNSON, VICE PRESIDENT, TECHNOLOGICAL SERVICES, NATIONAL LP-GAS ASSOCIATION

Mr. Chairman: I am Walter H. Johnson, Vice President for Technological Services of the National LP-Gas Association (NLPGA), and the Association's representative to the American National Standards Institute (ANSI) Committee Z21 for the last 17 years. My appearance before you today is in response to the request contained in the Chairman's letter to me of March 5, 1976 concerning the ANSI Z21 Committee's refusal to promulgate a standard for, an automatic vent damper, manufactured by Save-Fuel Corporation of Memphis, Tennessee, as a retrofit unit.

I served as Chairman of the ANSI task force on standards for automatic dampers for use on gas appliances, at the direction of the Chairman of the Z21 Committee. Therefore, I wish to stress that this position was one of an impartial ANSI task force chairman, and as such my function was wholly separate from that as a representative of the NLPGA.

I will briefly summarize the procedural history of this matter before the American National Standards Institute's Committee Z21. At its February 18, 1970 meeting the Z21 Committee was informed that the Committee's Z21.30 installation subcommittee had raised the issue of establishing a standard for automatic dampers. The purpose for developing such a standard was to establish the acceptability of automatic dampers for field installation.

The installation subcommittee believed that it would be preferable to have automatic dampers engineered to the appliance in order to minimize the possibility of either the device or the appliance malfunctioning in a way which would close the venting system during appliance operation. However, there was general agreement that the field installation of automatic dampers might be acceptable if they were tested and certified as complying with a standard which would establish that the device was designed and constructed so as to provide reliable operation and satisfactory operating characteristics.

The parent committee considered that the field installation of automatic dampers was contrary to the intent of other Z21 gas appliance standards covering accessories which can affect appliance operation, and that it was not desirable to include a standard for field installation of automatic dampers in the Z21 standards. Therefore, the Committee unanimously agreed to table the request for a standard to cover automatic dampers.

In response to subsequent requests the Z21 Committee, at its March 24, 1971 meeting, agreed to form a task force to study the possibility of establishing a standard for automatic dampers. I was appointed chairman of this task force, and a list of the other members is attached to my statement. I wish to stress at this point that the task force understood that the primary issue of consideration in establishing the proposed standards was safety and not fuel efficiency. The principal objective of the Z21 Committee is to adopt and promulgate criterion for the safe operation of gas burning appliances and related accessories at the highest level of safety.

The task force drew up guidelines for a standard for automatic dampers covering construction, performance, and installation which were later used to develop a draft standard which was reviewed by the task force and distributed for review and comment during September of 1973. Recognizing the wide interest in any development which might have a potential for reducing consumption, a notice was placed in the ANSI Reporter announcing the activity of the task force and soliciting comments from anyone interested in the project.

In December 1973 the task force reconsidered its draft standard in light of the comments received, modified the draft as deemed necessary, and recommended the resultant standard to the Z21 Committee. Shortly thereafter the

proposed standard was submitted to the Committee for adoption by letter ballot, and at the same time to ANSI for its concurrent public review procedure in order to expedite approval as an American National Standard.

The results of this letter ballot were 33 approve, 7 disapprove, and 1 not voting. In accordance with Section 79 of the ANSI Operating Procedures, which require Committee review of negative comments on the first ballot a re-ballot was taken. A copy of the ANSI procedures have previously been supplied to this subcommittee. The results of the re-ballot were 17 approve, 22 disapprove, and 2 not voting. In view of this ballot and the comments received, and again following ANSI procedures, the subject remained open, to be considered at the April 10, 1974 meeting of the Z21 Committee.

The Z21 Committee, at the April 10 meeting, decided not to approve a standard for field-installed automatic dampers in existing gas appliances. What it did was to instruct the furnace and boiler subcommittees to incorporate the damper standard into their respective furnace and boiler standards with the field installation provisions deleted. The concept of automatic dampers was therefore not rejected. Rather the Committee made specific provision for standards for such devices when, at the discretion of the manufacturer, they were incorporated into the total appliance system at the time of original construction. The Committee did not, however, approve standards for the field installation of automatic dampers in appliances after they had left the factory.

The rationale for this action was based exclusively upon consideration for the safety of those using gas-fired appliances. The Committee believed that satisfactory application and operation of the damper for each appliance design could best be achieved by construction and performance testing which follow the applicable appliance standards and certification testing procedures.

Copies of the ballots and the explanations for the votes taken have been previously submitted to this subcommittee. The negative votes were uniformly based upon the inherent danger posed by the installation of the damper device after the appliance had left the quality controlled environment of the factory, and by a person lacking the required technical skills for installation.

It is common knowledge that a hazard exists when fuel burns in an enclosed space. Thus any mechanism placed in the flue or vent of a gas-fired appliance must be able to function in a manner which will guarantee full combustion and not prevent the safe dissipation of waste fumes into the outside atmosphere. In these times of great public awareness of the need for fuel conservation there would be a strong temptation on the part of owners of gas appliances to install vent dampers in an attempt to reduce the use of gas. While some of these installations could be done correctly, the complexity of the fitting procedure is such that there would be no assurance for the continuing reliable and safe operation of the damper when installed by the non-expert.

In conclusion, Mr. Chairman, the members of the Z21 Committee were greatly concerned with the possibility that if automatic vent dampers became readily available on the retail market there would be wide spread installations of them by the individual appliance owner and the week-end "do it yourselfer." It was felt that such inexperienced installation created a risk for an avoidable loss of life and property which outweighed any potential fuel savings.

Thank you very much.

TASK FORCE ON STANDARDS FOR AUTOMATIC DAMPERS FOR USE ON GAS APPLIANCES

Walter H. Johnson (chairman), Vice President, Technological Services, National LP-Gas Association, 79 West Monroe Street, Chicago, Illinois 60603.

W. C. Arndt, Engineering Manager, Gas & Oil Products, Weil-McLain Company, Inc., Blaine Street, Michigan City, Indiana 46360.

Don D. Courtney, Asst. Director of Research, Washington Gas Light Company, 6801 Industrial Road, Springfield, Virginia 22151.

K. Kelton, Engineer of Utilization, Gas Department, Public Service Electric & Gas Co., 1025 McCarter Highway, Newark, New Jersey 07102.

R. W. Newell, Vice President, Product Development and Research Engineering, Rheem Manufacturing Company, 7600 South Kedzie Avenue, Chicago, Illinois 60652.

Ralph D. Sparkman, Assistant Chief Engineer, Gas Division, Memphis Light, Gas & Water Division, P.O. Box 388, Memphis, Tennessee 38101.

James Williams, Chief Engineer, Sterling Radiator Co., Inc., Gas Products Division, 260 North Elm Street, Westfield, Massachusetts 01085.

Mr. RAY. Mr. Johnson, you were chairman of the task force which developed the standard which would have allowed the installation of this device as a retrofit, is that correct?

Mr. JOHNSON. The task force was established to draft a—maybe I had better go to the beginning. We were charged with two matters. One was to look into the experience of existing automatic dampers in the field and, if the experience was such that it was not unfavorable, that we would then proceed to draft a standard, and I do not know that it is necessarily limited to retrofit. It was to draft a standard for automatic dampers.

Mr. RAY. But you did draft and submit a standard for the review of the Z-21 Committee which would have allowed this device to be tested and certified as a retrofit unit, did you not?

Mr. JOHNSON. Yes, sir.

Mr. RAY. When you were developing that standard, who did you think would be installing these devices in the field?

Mr. JOHNSON. Well, from the outset, the task force recognized that once this is certified as an accessory, that there is no limitation on who could install it, and I think we proceeded along the line with the idea of meeting that question when it came up later on.

Our prime mission was, as I say, to learn what the experience was: If it was unfavorable, not to proceed; if it was favorable, to proceed; we found it was favorable and we proceeded; we drafted a standard. The disposition, after it came to the Z-21 level, was another question.

Mr. RAY. Now, as I read your prepared statement, Mr. Johnson, your opposition to field installation is because you feel that the homeowner might install it. You don't seem to be opposed to the fact that the local maintenance man might install it.

Mr. JOHNSON. No, I think if the device were installed by qualified personnel, then I think there would be nothing wrong with that.

Mr. RAY. Certainly, we have to depend upon the local maintenance man to install other parts of the furnace.

Mr. JOHNSON. The maintenance man, I know there are all types of qualified personnel, and I think that one of the problems of this whole area right here is that there is a national fuel gas code, which is also an ANSI standard, and it covers the installation of piping and appliances.

The present provisions in that standard do not prohibit the installation of an automatic vent damper.

Mr. RAY. Excuse me, you say do not prohibit?

Mr. JOHNSON. Do not prohibit, no. And the damper—I think actually we were at that point when the Z-21 Committee took action on this draft standard—was that there should be some provisions developed in the national fuel gas code to properly set up the provisions under which this rather complex device—and I don't think it could be compared to a manual gas valve—should be installed. And I think that is the prime problem right now.

Senator ABOUREZK. Your personal position is, that if this device is installed by a competent workman, there are no safety problems?

Mr. JOHNSON. Well, I cannot absolutely say that—it can happen with even the best—but, yes.

Senator ABOUREZK. But you would give your stamp of approval, yours, personally?

Mr. JOHNSON. I think so.

Senator ABOUREZK. Did you ever attempt to write that into the standard, that sort of a qualification?

Mr. JOHNSON. No, we did not.

Senator ABOUREZK. Was there any reason why you did not?

Mr. JOHNSON. No. As I say, when we started out drafting the standard, we recognized there was a broad range of people who could be involved with the development of this, and we did not think it was in our scope to limit who would or would not.

Senator ABOUREZK. Well, what do you do on a gas valve, for example? How do you establish a standard for a gas valve?

Mr. JOHNSON. Well, the standard for a gas valve—and I am borrowing on Frank Hodgdon's expertise here—but on a gas valve, primarily it is material requirements, it is cyclic testing requirements, and it is things of that sort; it has nothing to do with who uses the valve or who puts it in.

Senator ABOUREZK. In other words, you set a standard on a gas valve based on the intrinsic value of the valve itself, right?

Mr. JOHNSON. Right.

Senator ABOUREZK. I mean, the intrinsic use of it and you do not talk about installation methods on gas valves, do you?

Mr. JOHNSON. No, sir.

Senator ABOUREZK. Now, in your opinion, is it possible that a homeowner, himself, might try to install a gas valve?

Mr. JOHNSON. I'm sure he does, every day.

Senator ABOUREZK. But is that unsafe?

Mr. JOHNSON. It can be and it cannot be.

Senator ABOUREZK. But you do not deal with that when you set a standard for it, do you?

Mr. JOHNSON. No.

Senator ABOUREZK. Then why do you try to deal with it on vent dampers? Why do you make a distinction between one appliance and another when it comes to safety?

Mr. JOHNSON. Well, I think I have to go back to the point I made earlier, Mr. Chairman, and that is the standard for the device itself, for testing and certification, minimum standards are one thing.

Senator ABOUREZK. Are what?

Mr. JOHNSON. Are one thing.

Senator ABOUREZK. Yes.

Mr. JOHNSON. And one other thing is the installation standard, which is another standard, and the National Fuel Gas Code Committee should provide more specific instructions as to who and how those devices are installed.

Senator ABOUREZK. But if the National Fuel Gas Code Committee does do it, how do you get around that catch-22?

Mr. JOHNSON. Well, something within that committee should be implemented so it is.

Senator ABOUREZK. Say that again?

Mr. JOHNSON. Work within the National Fuel Gas Code Committee should be implemented so that provisions are developed.

Senator ABOUREZK. All right. It should be done for the next dampers, right?

Mr. JOHNSON. Yes.

Senator ABOUREZK. But it should not be done for the gas valves that are being installed every day?

Mr. JOHNSON. Well, there are requirements in the installation code for valves, gas valves, that tell you where to put them and what type of valve to use, and very specific requirements.

Senator ABOUREZK. All right, so now we have another organization that sets standards for installation.

Mr. JOHNSON. That is right.

Senator ABOUREZK. Now, that's a new one on me again. What part does the AGA play in this installation organization?

Mr. JOHNSON. They are one of the cosponsors or administrative secretariat of the committee—it is called the ANSI Z-223 Committee.

Senator ABOUREZK. That is the Z-223 Committee.

Mr. JOHNSON. Right. I believe the other cosponsors are the American Society of Mechanical Engineers—and is that the only other one, Frank?

Mr. HODGDON. NFPA.

Mr. JOHNSON. The National Fire Protection Association. There are three sponsors of that sectional committee.

Senator ABOUREZK. Let me see if I can get this straight. Mr. Johnson, you serve on the Z-21 Committee.

Mr. JOHNSON. Yes.

Senator ABOUREZK. As a member of the Z-21 Committee, you did not feel competent to talk about installation?

Mr. JOHNSON. I did not think it was our scope of activities, although in the draft standards, you will recognize, there are in manufacturers' instructions a very minimal amount of requirements that have to be followed. As far as the detailed specific installation provisions, I believe it belongs in the Z-223 Committee.

Senator ABOUREZK. You are not a member of Z-223 Committee.

Mr. JOHNSON. I am an alternate member. We have a member of our association who is a member of Z-223.

Senator ABOUREZK. Have you ever talked to him?

Mr. JOHNSON. Yes, very much so.

Senator ABOUREZK. Have they ever talked about setting an installation standard for the vent dampers?

Mr. JOHNSON. Well, they are in the process of getting started in some meetings along that line now. I do not know where they are—I am not sure where they are at this point.

Senator ABOUREZK. So if you were interested in getting some kind of a standard set so a device such as the Vent-O-Matic could be marketed, what would you suggest that ought to be done at this point?

Mr. JOHNSON. I feel that the installation standard committee, Z-223, should implement provisions for who should install or the type of personnel involved with the installation of this device, and also spell out what provisions should be followed in its installation, and also—that being the case, I believe the draft standard could be adopted as an accessory standard.

Senator ABOUREZK. You think the task force standard might be adopted then?

Mr. JOHNSON. Yes.

Senator ABOUREZK. Do you know if the Z-21 Committee has ever adopted a standard for an accessory that had not been dealt with yet by Z-223?

Mr. JOHNSON. I can't recall offhand.

Senator ABOUREZK. Would you be able to check into that and supply that information to the committee?

Mr. JOHNSON. Yes, sir.

Senator ABOUREZK. We would appreciate it very much.¹

Mr. RAY. Mr. Hart, I have one more question for you. As I mentioned earlier, the subcommittee sent out questionnaires to some owners of Vent-O-Matic dampers. I would just like to read to you a reply we received.

The question we asked was this: "Do you have any other comments, negative or positive, about the Vent-O-Matic?" And Mr. Vincent O'Brien of 615 Elm Avenue, Dyersburg, Tenn., replied this way:

As a commissioner serving with the Dyersburg's Planning Commission, I had a Vent-O-Matic installed on my home furnace for testing purposes. My home is warmer in the winter, with substantial reduction in gas consumption. The Vent-O-Matic also helps in keeping the cool air inside my home during the summer months by closing the chimney opening. In checking the records of gas consumption in my home for the past 3 years during similar monthly billing periods, I found a 29.9-reduction in gas consumption.

I would like your response to Mr. O'Brien, and I would also like a response to this question: Given the fact that most utility companies are members of AGA, do you think it is possible that you could get together and develop a procedure whereby this device could be made available to the public and could be installed properly in the field?

Mr. HART. Well, certainly nothing is impossible, and that is very impressive what you read there. And I do not want to develop an argument with it because I do not have the grounds to, but I would point out that it is a very difficult thing for an individual to measure one heating season against another and come up with a good figure.

I mean, maybe it is 29, maybe it is 49, maybe it is 9. I do not know. Everybody tells you to close the dampers in your fireplace when you are not using it so you save heat; I do it all the time. We know that when you shut a damper it saves heat. We also know that when you shut a damper in the flue of a gas furnace, it is a very dangerous proposition unless you have got adequate safety there. I think basically it is a good concept, no question about it; but when you are facing the possibility—and it takes one case to wipe out a family, you know—for somebody to take the device, cut into the sheet metal duct leaving the furnace, leaving the draft diverter, install this device, then make the necessary electrical tie-ins to the furnace so that it will open when the thermostat calls for heat and the furnace comes on and close when it does not—it requires a good, knowledgeable workman to do this. How do you police this? I know that this happens. It is quite a different thing than having your furnace installed initially.

Senator ABOUREZK. How do you police any installation? It is the same problem.

Mr. HART. Same problem, right. But most installations are put in and checked out. If it is an after-the-fact installation, the utility com-

¹ Subsequent to the hearing the following answer was received:

During the hearing you had requested that I forward to you examples of Z21 standards for equipment that have been developed for which there are no provisions covering their installation in the National Fuel Gas Code, ANSI Z223.1. That is where the Z223.1 standard lagged Z21 standards. Some examples are as follows: Gas-Fired Sauna Heaters; Gas-Fired Toilets; Decorative Gas Appliances for Installation in Vented Fireplaces.

pany, if it has an outside meter, probably does not ever see the thing in the basement or wherever it may be. You would be surprised the things that are brought to our attention that are picked up by meter readers when they go into a basement and see changes that have been made. This is what we are concerned about.

We are proud of the safety record of gas, believe me.

Mr. RAY. You agree it is hard to police the installation of any device. The question then seems to be why discriminate against vent dampers.

Mr. HART. I can only answer it, really, from my own personal viewpoint. Having been a manufacturer of central furnaces for many years—and incidentally, in Tennessee, we were always very leery of any kind of a blocked flue condition, because it can present a very dangerous problem to a normally safe, efficient, satisfactory piece of heating equipment.

A blocked flue is bad business, and this is what we have to guard against, and I would be all for some way of doing this.

Senator ABOUREZK. Just provided we get the standard set, right? You would be all for it if we could just set a standard?

Mr. HART. Yes, if we had something that we could set as a standard and test against. I do not know whether this testimony this morning has brought out clearly enough the fact that we did certify, earlier, this appliance, this accessory, on a furnace. And if he chose to sell this as OEM equipment to furnace manufacturers and they incorporated it and offered it in this line—

Senator ABOUREZK. I do not mean to drag this out unduly long, but that really does not mean very much if you certified it for new furnaces, because there are not many new gas customers hooking up nowadays; are there?

Mr. HART. Unfortunately, that is true.

Senator ABOUREZK. So it really does not mean an awful lot if it is certified for a new furnace, does it?

Mr. CROWTHER. There are a lot of people replacing equipment, Mr. Chairman, and we would hope that if, as and when they do, that they would consider the wisdom of a furnace or a boiler so equipped.

Senator ABOUREZK. What is the percentage of people who replace their gas furnaces each year, and remain hooked up to gas?

Mr. HART. I was trying to recall some figures, because we have made some studies on the replacement market to illustrate to many regulatory commissions the importance of permitting the gas industry and the utility industry, in fact, to continue to advertise for the replacement market, because burning gas is an efficient use of fuel.

Senator ABOUREZK. Do you have a percentage number?

Mr. HART. I am trying to think what it is, but it is relatively high. The average life of a gas furnace is somewhere like 17 to 18 years. And there are—of course, the figure that was quoted earlier was around 40 million and I used a figure—that is both central furnaces and room furnaces, but I do not know. We have got it at the office.

Senator ABOUREZK. Would you send that to us?

Mr. HART. Yes, I would be happy to.¹

¹ Subsequent to the hearing, the following answer was received: A.G.A. estimates one million units per year. Total new furnace sales last year were approximately 1.2 million units, and it is estimated there are approximately 21 million gas central furnaces presently installed, based on the 1970 U.S. census projected to 1975.

Senator ABOUREZK. We have no more questions. I want to express the thanks of the subcommittee for your appearance here today and the answers to the questions that you have given and for your testimony. Thank you.

The hearings are in recess until tomorrow morning at 10 a.m., and we will hear from representatives of the German group and from a representative of the Federal Energy Administration.

[Whereupon, the subcommittee recessed at 1:55 p.m., to reconvene on March 22, 1976.]

VOLUNTARY INDUSTRIAL STANDARDS

TUESDAY, MARCH 23, 1976

U.S. SENATE,
SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
OF THE COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met at 9:45 a.m., in room 2228, Dirksen Senate Office Building, Hon. James Abourezk, presiding.

Staff present: Howard E. O'Leary, chief counsel and staff director; John Ray, assistant counsel; Catherine M. McCarthy, chief clerk; Peter N. Chumbris, chief minority counsel; Harry A. Dixon, Jr., minority counsel; and Emory Sneed, assistant minority counsel.

Senator ABOUREZK. The subcommittee will come to order. First I want to apologize for being late. I thought the hearings were to start at 10 o'clock this morning. At least that's what the schedule said, and so my apologies to the witnesses.

The first witness this morning is Dr. Manfred John of Karlsruhe, West Germany. Dr. John, would you please come up? Do you have an interpreter with you?

Dr. JOHN. Yes. Mr. Diermayer will assist me. I do speak English but perhaps I will have some problems.

Senator ABOUREZK. We would like to welcome you to the United States and to the Antitrust Subcommittee. If you are ready to proceed, please go ahead.

STATEMENT OF DR. MANFRED JOHN, ENGLER-BUNTE INSTITUT, KARLSRUHE, FEDERAL REPUBLIC OF GERMANY; ACCOMPANIED BY WERNER DIERMAYER, INTERPRETOR

Dr. JOHN. Mr. Chairman, my name is Manfred John. I am working as a testing engineer at the Engler-Bunte Institut in Karlsruhe, Federal Republic of Germany.

This institute belongs to the University of Karlsruhe. As a part of the university, we are working for the industry making tests to prove that gas appliances and gas material is in accordance to the standards existing or to general safety rules. We have no profit aims.

On the other hand, we are working for the DVGW, this is an association similar to the AGA in the United States. In our work, we do not depend on the DVGW but we support the aims of this association in technical affairs.

As a test house, we have no influence on the general policy of the DVGW. In this sense I am only speaking for the Engler-Bunte Institut and not for the DVGW, and only on technical affairs and technical meanings.

Coming to the dampers, I will first speak on the safety of mechanically operated flue dampers. Safe operations of these mechanically operated dampers can be achieved because it is possible to have a direct connection between the burner or the gas release, and the position of the damper element.

Provided the damper is properly designed, it will meet the following requirements which will guarantee safe operation. Gas release is only possible if the damper is completely open, for example, the transportation of waste gas is insured at all events, provided the exhaust flue is adequately designed.

Defects in the damper elements or corrossions, and so forth, will not cause any danger; if there are faults during operation, the burner will switch off automatically.

In order to test the damper elements produced by different manufacturers, it is essential that specifications and test requirements are laid down in a standard.

The safety of thermally controlled dampers. A direct connection between gas release and opening of the damper element is not possible with this type of construction.

The damper opens thermally after ignition of the burner. However, the risk in operation can be minimized by adequate design and construction of the damper element to insure a long and safe-operating period.

The long-term behavior of mechanical components can be tested. Defects in operation can be avoided by appropriate dimensioning and choice of material.

According to our experience of more than 1 million dampers in the field, the following specifications for safe operation can be formulated:

First: The temperature stability of the damper element should exceed 300 or 400 degrees in centigrade, depending on the gas appliance.

Second: The damper must not have any movable parts with mechanical friction. The bimetal must be the closing device.

Third: The flow direction should be unimportant. An incorrect installation should not impair the opening of the damper, and the last point, the mechanical construction must be sufficiently strong, the casing must be big enough to avoid the segments overlapping the casing. A deformation of the casing by hand should be impossible. All parts must be of corrosion-resisting material. The bimetal should be aged before processing.

There are, in fact, makes which meet this requirement. Some experiences in Germany has shown that in these cases safe operation is possible over a long period. The thermally controlled damper is not fail-safe. I must emphasize this but provided the construction is correct, defects in operation can only arise when faults are made during installation.

In all cases the damper must be constructed in such a way that the flue gas reaches the bimetal parts quickly so that the damper opens immediately after starting the burner. To achieve this, part of the sectional area remains open approximately 5 to 20 percent, but that depends on the dimension.

The flue gas can thus penetrate the damper and heat the bimetal parts. The opening time is 3 to 5 seconds for well-constructed appliances. The German standards permit 10 seconds.

This means that during this time waste flue gas is spilled into the living rooms.

Dampers as an accessory. That means additional installation of the dampers in the appliance. The thermally controlled dampers are mainly installed as an additional part or retrofit part in gas appliances already purchased.

There are several types available either in the shape of a tube with a built-in damper which is connected to the flue or the retrofit unit to be installed in the flue pipe.

In the latter case the casing of the damper is within the pipe. The proper function of the damper—opening, closing, and draft exhaust—I think it is necessary to stress that the draft exhaust must also be controlled—must be checked after installation.

The flow resistance of the damper in the opening position must be small enough to prevent any flue emission. This requirement is fulfilled by most of the cylindrical draft diverters.

With built-in asymmetrical draft diverters, the installation of dampers can create problems because flue is introduced into the pipe on only one side. It may be that the bimetal segments will hinder the flue entry.

The manufacturers of gas appliances produced in large numbers have already turned to installing damper elements into their appliances and to adjust the function exactly to the flow conditions of the apparatus.

It can be assumed that in the future many manufacturers will install the damper elements in the draft diverter of independent heaters and storage water heaters.

Next point, the application of mechanically operated dampers. This type of damper is nearly always installed before the draft diverter in appliances with burners having no fan.

I think there is quite a difference to the methods used in the United States. In the United States the damper is always installed after the draft diverter. We have both possibilities for the mechanically operated dampers, which can be installed before or after the draft hood.

The installation behind the draft diverter is also possible, but to save costs, thermally controlled dampers are preferred. It is by all means possible to install a mechanically operated damper before and a thermally controlled damper behind the draft diverter.

The thermally controlled diverters can be used for gas appliances with atmospheric burners and installed behind the draft diverter. The advantages for installation are as follows:

Avoids additional ventilation of the room and heat loss during the periods of disuse. Reduces the heat loss of the gas appliance itself by forced thermal convection in the heat exchanger due to the flow in the flue exhaust. And avoiding low pressure interference if several gas appliances are connected to one chimney with several tubes connected with the chimney.

The first two points mentioned above concern the saving of energy. The last point suggests technical advantages in relation to the con-

nection of several gas appliances to one flue. Finally, energy saving by means of damper. A damper reduces two types of heat loss. The first is a cooling down of the gas appliances and the water in the heat exchanger during the period of disuse; the second one a cooling down of the installation room or living room if this room is air-conditioned.

Energy saving by mechanically operated dampers. A precondition for the use of mechanically operated dampers is that electrical energy is available to the appliance. Both kinds of heat loss mentioned above can be reduced with this damper.

The thermally controlled dampers can be fitted behind the draft diverter into any gas appliances with atmospheric burners. The heat loss in the room is diminished as far as possible, similar to the mechanically operated damper. The cooling down of the heat exchanger is partly avoided at extreme subpressure in the chimney.

And the last point: The values we have measured in our laboratory. The thermally controlled dampers will reduce the energy loss of the room by 2 to 5 percent of the nominal input depending on the pressure of the chimney.

And the heat loss of the appliance itself is changed according to the appliance. With boilers there is a value of about 5 percent depending on the size of the boiler. And with storage water heaters, 10 to 15 percent, depending on the water temperature. The higher the temperature, the higher the loss. For mechanically operated dampers we have only a few values but the fuel saving is, in any case, either better or at the same level.

Concluding, I think we can say the thermally controlled damper can be used with advantage when the gas appliance is situated in a heated room, when the appliance has a long resting time and when water is to be heated, for example, storage water heaters. With warm air generators installed in heated rooms, the damper can only prevent the heat loss of the room itself. The advantage of fuel saving is small with warm air generators situated outside of heated rooms. In this case a mechanically operated damper before the draft diverter is to be preferred. Thank you.

[The prepared statement of Dr. John follows. Testimony resumes on p. 618.]

PREPARED STATEMENT OF DR. MANFRED JOHN, ENGLER-BUNTE INSTITUT

THERMALLY CONTROLLED AND MECHANICALLY OPERATED FLUE GAS DAMPERS

A. SAFETY

(a) *Mechanically operated flue gas dampers*

Safe operation can be achieved because it is possible to have a direct connection between the burner, or the gas release, and the position of the damper element. Provided the damper is properly designed, it will meet the following requirements which will guarantee safe operation:

Gas release is only possible if the damper is completely open, i.e., the transportation of waste gas is ensured at all events, provided the exhaust flue is adequately designed.

Defects in the damper elements or corrosions etc. will not cause any danger; if there are faults during operation the burner will switch off automatically.

In order to test the damper elements produced by different manufacturers, it is essential that specifications and test requirements are laid down in a standard.

(b) Thermally controlled dampers

A direct connection between gas release and opening of the damper element is not possible with this type of construction. The damper opens thermally after ignition of the burner. However, the risk in operation can be minimized by adequate design and construction of the damper element to ensure a long and safe operating period. The long-time behaviour of mechanical components can be tested. Defects in operation can be avoided by appropriate dimensioning and choice of material.

According to the findings made by our testing laboratory and to practical experience during the past ten years with more than 1 million dampers, the following specifications for safe operation can be formulated:

The temperature stability of the damper element should exceed 300° C or 400° C, depending on the gas appliance.

The damper must not have any movable parts with mechanical friction; the bi-metal must be the closing device.

The flow direction should be unimportant; an incorrect installation should not impair the opening of the damper.

The mechanical construction must be sufficiently strong; the casing must be big enough to avoid the segments overlapping the casing. A deformation of the casing by hand should be impossible. All parts must be of corrosion resisting material; the bi-metal should be aged before processing.

There are in fact makes which meet these requirements. Experience has shown that in these cases safe operation is possible over a long period. The thermally controlled damper is not fail-safe. However, provided the construction was correct, defects in operation can only arise when faults were made during the installation.

In the Federal Republic of Germany thermally controlled dampers are tested according to a standard; they can then be installed in all types of gas appliances, behind the draught diverter. The test requirements are formulated in such a way that the average flow conditions of gas appliances are taken into account. A final check on the functioning (opening, closing, proper draught exhaust) is made by the installer.

In all cases the damper must be constructed in such a way that the flue gas reaches the bi-metal parts quickly so that the damper opens immediately after starting the burner. To achieve this, part of the sectional area remains open (approx. 5-20 percent), the flue gas can thus penetrate the damper and heat the bi-metal parts. The opening time is 3 to 5 sec. for well-constructed appliances; the German standard permits 10 sec.

B. ACCESSORY

The thermally controlled dampers are mainly installed as an additional part in gas appliances already purchased. There are several types available, either in the shape of a tube with built-in damper which is connected with the flue, or as a retrofit unit to be installed in the flue pipe. In the latter case the casing of the damper is within the pipe.

The proper functioning of the damper (opening, closing and draught exhaust) must be checked after installation. The flow resistance of the damper in the open position must be small enough to prevent any flue emission. This requirement is fulfilled by most of the cylindrical draught diverters. With built-in asymmetrical draught diverters, the installation of dampers can create problems because flue is introduced into the flue pipe on one side only. It may be that the bi-metal segments will hinder the flue entry.

The manufacturers of gas appliances produced in large numbers have already turned to installing damper elements into the appliances and to adjusting the function exactly to the flow conditions in the apparatus. It can be assumed that in future many manufacturers will install the damper elements in the draught diverter of independent heaters and storage water heaters.

C. APPLICATION

Mechanically operated dampers

This type of damper is nearly always installed before the draught diverter in appliances with burners having no fan. It is also installed in appliances with fan-equipped burners to prevent cooling down of the heat exchanger during periods of disuse.

Installation behind the draught diverter is also possible, but to save costs thermally controlled dampers are preferred.

It is by all means possible to install a mechanically operated damper before and a thermally controlled damper behind the draught diverter.

Thermally controlled dampers

This type can be used only for gas appliances with atmospheric burners and installed behind the draught diverter.

Advantages of installation:

Avoiding additional ventilation of the room and heat loss during the periods of disuse.

Reducing heat loss of the gas appliance by forced thermal convection in the heat exchanger due to the flow in the flue exhaust.

Avoiding low-pressure interference if several gas appliances are connected to one chimney.

The first two points above concern the saving of energy, the last point suggests technical advantages in relation to the connection of several gas appliances to one chimney.

D. ENERGY SAVING

General: A damper reduces heat loss as follows:

Cooling down of the gas appliance and the water in the heat exchanger during the periods of disuse.

Cooling down of the installation room if this room serves as living quarters.

Mechanically operated dampers

A pre-condition for the use of mechanically operated dampers is that electrical energy is available. Both kinds of heat loss mentioned above can be reduced with this damper.

Thermally controlled dampers

This damper can be fitted behind the draught diverter into any gas appliance with atmospheric burner. The heat loss in the room is diminished as far as possible, similar to the mechanically operated damper. The cooling down of the heat exchanger is partly evaded at extreme sub-pressure in the chimney.

Appliances

With warm air generators and independent heaters the heat loss in the heat exchanger is of minor importance, the cooling down of the installation room is more significant.

With storage water heaters and boilers the heat loss in the heat exchanger during periods of disuse can be a predominant factor.

Values

Thermally controlled damper.

Energy loss in the room: 2-5% of nominal input, depending on the pressure in the chimney.

Heat loss of the appliance: Changes in the loss during periods of disuse.

Boiler: Up to 5%, depending on the size of the boiler and the water temperature.

Storage water heater: 10-15%, depending on the water temperature.

Mechanically operated damper.

Few values available, fuel saving certainly better.

CONCLUSIONS

The thermally controlled damper can be used with advantage when the gas appliance is situated in a heated room, when the appliance has long resting times and when water is to be heated (e.g., storage water heaters). With warm air generators installed in heated rooms the damper can only prevent heat loss of the room.

The advantage of fuel saving is small with warm air generators situated outside heated rooms. In this case a mechanically operated damper is to be preferred.

Senator ABOUREZK. Thank you very much, Dr. John. Would you explain to the subcommittee the relationship between the DVGW and the Engler-Bunte Institut?

Dr. JOHN. I will explain it to you. The DVGW is a German gas association or similar to the German Gas Association, and this association makes standards for the different gas appliances and is, according to the government, liable for the safety of the gas appliances.

We are only a test house, and we have a certification from the DVGW to make tests according to the standards laid down. But we are working together with the DVGW to make these standards.

There are some committees similar to those in the United States, consisting of industry, consumers, test houses, and the DVGW itself.

We are only consulted on technical questions concerning testing and on some special technical questions. We might, for instance, be asked for values, but not for our opinion on whether something is wrong or not.

Senator ABOUREZK. In other words, the Engler-Bunte Institut is independent of the DVGW?

Dr. JOHN. Yes. We are financially independent of the DVGW. We are depending on the University of Karlsruhe.

Senator ABOUREZK. Now, do you serve on one or more of the standards setting committees of the DVGW?

Dr. JOHN. Yes. I personally serve on 10 or 12 such committees. We have some other cooperators working in other committees.

Senator ABOUREZK. Now, are you familiar enough with the DVGW to tell us the makeup of its membership and how it develops standards?

Dr. JOHN. I am quite familiar. Do you have any precise questions or do you want me to give a general scope?

Senator ABOUREZK. What's the membership of the DVGW? Who are the members?

Dr. JOHN. There are two types of members, personal members, I am a personal member, and the big gas manufacturers and water distributors. The fees paid to this association depend on the gas and water consumption in Germany.

Senator ABOUREZK. Now, how does the DVGW develop standards for a device like the Vent-O-Matic?

Dr. JOHN. They found a committee and asked the manufacturers associations to name principal manufacturers who are interested in this field. Then they asked the test houses if they wanted to cooperate, and they also asked some consumer organizations. Thus, the committee is formed.

This committee nominates a chairman or elects the chairman by a simple majority, and then work can start. Normally, the first draft is made by a member of a test house.

Senator ABOUREZK. All right. Does the Federal Government sanction the standards developed by DVGW?

Dr. JOHN. Yes. In general, the Government has no objections to the standards made by the DVGW.

Senator ABOUREZK. All right. Is it true then that in Germany all localities, all the municipalities and the local subdivisions of government are required to recognize and follow the specifications set down by DVGW?

Dr. JOHN. Yes, in general. But if they can prove that for any reason a specification does not apply in a particular region of Germany,

they may disregard it. But they have to prove their arguments by test results or by practical experience.

Senator ABOUREZK. The standards which cover vent dampers in Germany, are they set down in two parts, one for thermally controlled dampers and one for mechanically controlled dampers, is that correct?

Dr. JOHN. Yes, that's correct.

Senator ABOUREZK. Does the term "mechanical" also include electrically operated vent dampers?

Dr. JOHN. Excuse me?

Senator ABOUREZK. When you say "mechanically controlled" does that include electrically controlled dampers as well?

Dr. JOHN. Yes, naturally.

Senator ABOUREZK. So you have one set of standards for thermally controlled and another set of standards for mechanically and electrically controlled?

Dr. JOHN. I think there is a gap in our standards. We have two types of standards. One for mechanically controlled and the other for thermally controlled devices. The first one combines mechanical and electrical specifications. We have another electrical society covering the electrical part of these standards. This society can make objections to the electrical specifications laid down.

Senator ABOUREZK. Has your institute tested vent dampers both for safety and for fuel savings?

Dr. JOHN. Yes, but generally we are making the tests for safety, according to the standards. But in addition we have made some special tests for fuel savings.

Senator ABOUREZK. In considering safety factors, would you have to separate thermally controlled dampers from mechanically or electrically controlled dampers? Are they two different considerations?

Dr. JOHN. Yes, sir; I think they are quite different considerations because in our opinion a thermally controlled damper can only be installed after the draft hood while the other type, the mechanical one, can be installed before or after the draft hood and must in any case connect electrically with the circuit of the gas appliance.

Senator ABOUREZK. Now, you mention in your statement that the thermally controlled damper is not fail safe. Do you believe that the mechanical or the electrical damper is fail-safe?

Dr. JOHN. Yes. According to our opinion, the mechanically operated damper is fail-safe or can be constructed fail-safe. Not every construction is fail-safe; I think we should emphasize this.

Senator ABOUREZK. Would you repeat that, please?

Dr. JOHN. Yes. A mechanically operated damper can be constructed as a fail-safe construction. But not every construction is fail-safe. Or principle, a thermally controlled damper cannot be constructed fail-safe. It is impossible.

Senator ABOUREZK. But a mechanically controlled damper can be constructed fail-safe?

Dr. JOHN. Yes, exactly.

Senator ABOUREZK. Have you had the opportunity to examine the electric solenoid device manufactured by the Save-Fuel Corp. of Memphis, Tenn.?

Dr. JOHN. No, we did not test it, but we had similar constructions in Germany that can be compared, on technical aspects, with this construction, and they have passed our tests.

Senator ABOUREZK. And you have seen this device?

Dr. JOHN. Yes, I saw it yesterday and this morning. The German construction using a solenoid are quite similar to this construction.

Senator ABOUREZK. Have you also seen a design and wiring diagram of the Save-Fuel Corp. device?

Dr. JOHN. Yes.

Senator ABOUREZK. In your opinion, if that device is manufactured properly, is it a fail-safe damper?

Dr. JOHN. Yes.

Senator ABOUREZK. Could such a device be tested and certified as an accessory under the existing standards in Germany?

Dr. JOHN. Yes, it could be, but I think you must know that in Germany a homeowner would in no case do the installation himself. It would be done by a specialist either of the gas appliance manufacturer, a service man, or an installer who has a certification for installing gas appliances and flue equipment, and so forth.

Senator ABOUREZK. In Germany when a device is installed in the field, is it done by a competent workman?

Dr. JOHN. By a competent installer.

Senator ABOUREZK. Who does the installation of these devices in Germany?

Dr. JOHN. The installation is done by a qualified installer who has passed examinations and who has a certification to install certain types of gas appliances; he is trained in installing these gas appliances and is familiar with the special construction he will install.

Senator ABOUREZK. I understand there have been some accidents in Germany with the thermally controlled damper, is that true?

Dr. JOHN. Excuse me?

Senator ABOUREZK. Have there been some accidents in Germany?

Dr. JOHN. Yes, there have been some accidents.

Senator ABOUREZK. With the thermally controlled damper?

Dr. JOHN. Yes, that is right.

Senator ABOUREZK. Now, do you know of any accidents with the mechanically or electrically controlled damper?

Dr. JOHN. No, I'm not aware of any and I think there were none; but I cannot say it for sure because at our test house, we hear only of severe accidents, not of small problems of disfunction.

Senator ABOUREZK. As I understand it, most of the accidents with the thermally controlled damper occurred because somebody had tampered with the vent pipe or with the device itself, do you know if that is true?

Dr. JOHN. No.

Senator ABOUREZK. You don't know?

Dr. JOHN. I don't know.

Senator ABOUREZK. Now, if the damper itself were unable to open 100 percent on a mechanically or electrically controlled damper, because somebody had tampered with the vent pipe, would there be a danger of the people living in the house being asphyxiated with gas?

Dr. JOHN. No, not according to our opinion, because the gas valve

is still closed and the appliance cannot operate. I think if there is a correct electrical wiring, it's impossible to start the burner.

Senator ABOUREZK. From the testing you have done in Germany, would you recommend the installation of a thermally controlled vent damper on this kind of furnaces, the forced air furnaces that are used widely here in the United States?

Dr. JOHN. Yes, but only if they are installed in warm rooms. That means in rooms with conditioned air. If they are installed in cold places—in Germany we have the installation in the basement, which should be cold in our opinion because it is a storage room—I think there is no use in having a bimetal damper.

But if they are installed in warm rooms, we would strongly recommend it.

Senator ABOUREZK. Are thermally controlled devices used on forced air furnaces in Germany?

Dr. JOHN. No. I think that this is not allowed.

Senator ABOUREZK. It is my understanding that in some cases in Germany a vent damper is mandatory.

Dr. JOHN. Yes. That means for a combined installation—I do not know if they exist in the United States. In some old houses we have one chimney that connects old fireplaces and perhaps coal fire stoves and gas appliances.

And for this reason this connection is possible but all gas appliances must be fitted with a thermally controlled damper after the draft hood.

Senator ABOUREZK. Is that the only kind of house where the use of vent damper is mandatory?

Dr. JOHN. Yes, sir.

Senator ABOUREZK. In no other cases is it mandatory?

Dr. JOHN. No other cases.

Senator ABOUREZK. Turning to the tests that the institute has done regarding the fuel savings ability of vent dampers, what was the range of savings found?

Dr. JOHN. The range differs according to the material tested, and we found that energy loss or saving is equal to 2 to 5 percent of the heat consumption. In addition, the heat loss of the water heater with and without damper differs 10 to 15 percent.

In practice, both losses can be added up so that—at its best—the energy saving amounts to 20 percent when using dampers.

Senator ABOUREZK. From the testing that you conducted at the institute, do you believe that homeowners should be encouraged to use vent dampers as a means of saving energy?

Dr. JOHN. Yes, naturally.

Senator ABOUREZK. Now, if I understand your statement correctly, you say that you get better conservation of energy with a mechanical or an electrical device than with a thermally controlled device, is that correct?

Dr. JOHN. Yes; but not in every case. Naturally the mechanically controlled damper is tighter. The flue is tighter closed than for the thermally controlled.

But the efforts to be made are much higher, and I think if you forbid the installation before the draft hood, it's in any case sufficient to install a thermally controlled damper.

Senator ABOUREZK. Do you have any questions?

Mr. RAY. Dr. John, from the testing that you have done, would you recommend the installation of a thermally controlled vent damper on the forced air furnaces used here in the United States?

Dr. JOHN. Yes; I would recommend it but only if the equipment is installed in a warm place, not if it is installed in a cold basement. That is of no use.

Mr. RAY. Is there enough heat coming through the vent pipe to insure that the bimetal will function properly?

Dr. JOHN. Yes. In any event, because I think you can calculate it. In the first 2 or 3 seconds there's a spillage of wastes to the living room, but this amount of flue is lower than if you would have a cooker with open fire in the same room.

You also allow a cooker to be installed in the living quarters. It's only 1 cubic foot against perhaps 100 cubic feet in the same room.

Senator ABOUREZK. Well, that's all the questions the staff has. I just have one more question. Would you pronounce DVGW in German, the full name?

Dr. JOHN. I cannot translate.

Senator ABOUREZK. I mean in German. I just want to hear it pronounced.

Dr. JOHN. Deutscher Verein Von Gas-und Wasserfachmaennern, translated, German Association of Gas and Water Specialists.

Senator ABOUREZK. Thank you very much. There are no more questions, and I want to express my thanks to you for coming here to testify. You've offered valuable testimony and some excellent information for the subcommittee in its inquiry into this matter.

So my thanks and the thanks of the entire subcommittee go to you. The next witness is Luitpold Kutzner, of Munich, West Germany.

STATEMENT OF LUITPOLD KUTZNER, KUTZNER-WEBER GMBH & CO., MUNCHEN, WEST GERMANY; ACCOMPANIED BY WERNER DIERMAYER

Mr. KUTZNER. [Reading statement in a foreign language.]

Mr. DIERMAYER. [Interpreting statement for Mr. Kutzner.]

My name is Luitpold Kutzner. I am the managing partner of Kutzner-Weber in Grobenzell, near Munich. Since my English is limited, I asked Mr. Diermayer to translate for me and read the statement.

Mr. KUTZNER. Thank you.

Mr. DIERMAYER. In central Europe, the cost of energy has always been much higher than in the United States. Consequently, the development of fuel-saving devices was propelled concurrently with the development—

Senator ABOUREZK. Excuse me, just a minute. I think we should identify Mr. Kutzner. He is a manufacturer of vent dampers in Germany, is that not correct?

Mr. DIERMAYER. Yes, sir, that is correct.

Senator ABOUREZK. OK.

Mr. DIERMAYER. Consequently, the development of fuel-saving devices was propelled concurrently with the development of gas-fired equipment.

For gas-fired water heaters and space heaters, a number of vent damper systems were developed, starting in 1930. The process of natural selection during 4 decades, led to the following present situation:

A total of 3.6 million automatic vent dampers have been sold to date. An estimated 2 million automatic vent dampers are now in service in Germany, Switzerland, and Austria, and in other countries, as I will specify later. Approximately 99 percent are thermally controlled dampers. Thermally controlled vent dampers are permitted in all localities and jurisdictions of Germany, Switzerland and Austria, and are considered standard components of vents for gas appliances. The German standard for the installation of gas-fired appliances specifically recommends the installation of automatic vent dampers in certain cases and makes the installation mandatory in others. The German standard DIN 3388 covers the design and performance of vent dampers.

Every apprentice in the plumbing, heating and ventilating trades learns about vent dampers in trade school, just as he is exposed to water heaters and other equipment.

The main benefit of automatic vent dampers is fuel conservation. Heat losses in gas-fired equipment occur in a number of ways. Two kinds of standby losses can be effectively reduced by vent dampers.

One is heat loss in the equipment. In three independent tests, this loss was measured in a 30-gallon water heater, with and without a thermally controlled damper, at a draft of 3 millimeter water column, which is approximately one-eighth of an inch.

The fuel savings were as follows: At the Engler-Bunte Institut of the University of Karlsruhe, the German equivalent of the AGA Laboratories in Cleveland, 15.6 percent; in a series of tests at the Polytechnical Institut in Munich, tests were conducted by Professor Wilhelm Schirmer, sworn public expert in gas technology; the savings, 16.3 percent; in the laboratories of Kutzner-Weber, the tests resulted in a saving of 17.3 percent.

The loss of conditioned air through the continuously open vent, is an additional standby loss. Its magnitude, and the degree to which it is eliminated by vent dampers, depends on the type of building, the fit of windows and doors, and the climate. It is difficult to isolate and measure exactly. Many years of practical experience, in Germany, have shown that the overall savings resulting from the installation of a thermally controlled damper, in most cases, are between 5 and 30 percent.

The existence of thermally controlled vent dampers was brought to the attention of the American Gas Association in 1965, and the Z-21 Committee in recent years. Some of the members of the task force in charge of developing a standard for automatic vent dampers expressed doubts about the effectiveness and reliability of thermally controlled dampers. These doubts, which I believe were based on assumptions rather than investigation, resulted in the omission of any reference to the thermally controlled dampers in the proposed standard Z-21.61. In the proposed revision to standard Z-21.13, they were again omitted. The Z-21 standard, in its present form, excludes thermally controlled dampers from being used in the United States. One of the objections to thermally controlled vent dampers is the spillage of

products of combustion during the initial seconds after burner ignition.

The objection is not valid for the following reasons:

First, it is known that backdrafts do occur under certain weather conditions in natural draft vents. Therefore, a draft hood is required to deflect the downdraft from the appliance where it could affect combustion.

Under conditions of backdraft, all products of combustion spill into the room for an undetermined length of time. The applicable Z-21 standard allows up to 15 minutes for weather and systems related startup spillage.

Second, gas ranges are usually equipped with a hood and a power fan that the user may or may not turn on. With the fan off, the gravity damper remains closed and all products of combustion stay in the kitchen.

Third, large, direct-fired gas heaters used in the United States in warehouses and manufacturing areas are not vented. They are designed to spill all products of combustion, together with the heated air into the warehouses and work areas.

In the three cases—backdraft, open burner of gas ranges, and direct-fired heaters—spillage of large amounts of products of combustion occurs for a long or undetermined time-span with the consent of the regulatory authorities.

In comparison to the cases just mentioned, the spillage attributable to a thermally controlled vent damper is of short, predictable duration—about 5 seconds—and negligible in quantity. Boiling one egg on a gas range causes much more spillage.

Rejecting thermally controlled vent dampers on grounds of spillage means applying a stringent standard that is not applied to other equipment.

A second objection to thermally controlled vent dampers is that they are not fail-safe. It is generally assumed that a fail-safe design is safer than a system or device that is not equipped with a backup or feedback system that prevent hazardous situations.

That is a misconception. Our lives depend daily on technological systems that are not fail-safe. Some examples are: the steering system of a car; the wing of an aircraft; the rotor shaft of a helicopter.

There is nothing to back up those systems if they fail and to prevent fatal accidents, yet, accidents caused by failure or those non-fail-safe systems are extremely rare. On the other hand, in the space industry, the fail-safe concept has been applied extensively, yet malfunctions and accidents happened.

Why do we use fail-safe designs in some cases and not in others? The difference lies in the records of reliability. In the space industry, much new technology with insufficient records of reliability have been used.

In more mature technological fields, such as the automotive and aircraft industries, functional and structural systems have been improved, and then used long enough to establish a good record of reliability. At that point, a fail-safe design does not provide additional benefits and may only cause complications.

With these facts in mind, may I ask you to look at the safety record of thermally controlled vent dampers? Approximately 900,000 units of the 1932 model were sold. Ten fatal accidents happened with appli-

ances on which the 1932 model had been installed. In all cases the dampers had been functioning correctly for 4 to 13 years.

In five cases, the dampers were removed and then replaced incorrectly, years after the original installation. One of the five was reinstalled upside down, which prevented quick opening of this first model. The other four were replaced in such a way that an interference between the damper disk and the collar of the draft hood occurred. In those five cases mentioned, the dampers functioned correctly after the accident, when they were reinstalled correctly.

In two cases, the dampers had been forcibly deformed.

In one case, such a heavy buildup had developed in the finned coils in an instantaneous water heater, that excessive CO was produced during combustion. The damper, itself, functioned properly.

In only one case, the damper, itself, failed, as a result of overheating to 900° F. The maximum temperature allowed by the German standard for vent gases, at that point, is 570° F.

Approximately 500,000 units of the 1960 model were sold. It was designed to substitute the 1932 model for instantaneous water heaters.

One accident occurred with an appliance on which a 1960 model had been installed. I would like to emphasize that this accident was caused by backdraft and the accident probably would have happened without the flue damper, as it did with the flue damper. The damper, itself, functioned properly.

None of the 11 accidents above was caused by failure or fatigue of bimetal or by defects of material and workmanship.

Approximately 1,500,000 units of the 1967 model have been sold to this date. There are no reports of accidents or malfunctions.

I believe this 1967 model vent damper is an example of eliminating problems and malfunctions by design.

The installation takes a few minutes at the most. In many cases, it is sufficient to lift the vent pipe from the draft hood, insert the damper and replace the vent pipe.

At standby, the vent is closed by four quadrants of thermostatic bimetal. When the appliance is fired and the hot flue gases reach the damper, the quadrants flex and open the vent passage. This internal flexing of the bimetal quadrants is the only movement that takes place in the damper.

Both the heat sensing and the opening/closing functions are performed by the same element, the bimetal quadrant. Therefore, no transmission of signals or movements between components is required.

The absence of linkages, friction surfaces, bearings, electrical circuits, contact points, relays, thermocouples, or nuts and bolts, makes the damper extremely simple and reliable.

Thermally controlled dampers always react correctly, even in case of equipment malfunction. The damper remains open as long as products of combustion rise from the burner, whether it is a result of thermostatic control or manual override or equipment malfunction, such as a gas valve stuck in the open position.

This vent damper has another unique feature. If a designer were given the task of developing a vent control system that minimizes heat loss, regardless of economic limitations, he would design an infinitely variable damper mechanism that would always allow all products of combustion, plus a small amount of conditioned air, to escape through the venting system.

By providing modulating draft control, the thermally controlled damper saves heat energy during the operating periods, especially on windy days, in addition to its primary job of reducing heat loss during standby.

The price to the consumer of a thermally controlled vent damper is between \$10 and \$30, depending on the size and the quantities manufactured.

Maintenance of thermally controlled dampers is zero.

There are many millions of water heaters in this country that, right now, are cooling off too fast and calling for heat too soon. That wasted energy is lost forever. Here is a reliable, simple, economical product of mature and proven design, to reduce heat losses. Shouldn't we use it? Everyone will agree that we should proceed with caution. But let us also proceed with vision and imagination.

Thank you, Mr. Chairman.

[Mr. Kutzner read his prepared statement. The attachment to his statement follows. Testimony resumes on p. 628.]



1932 model
900,000 sold

10 accidents with gas appliances
on which this model of a vent
damper had been installed.



1960 model
500,000 sold

One accident with gas appliances
on which this model of a vent
damper had been installed



1967 model
1,500,000 sold

No accident

COMPILATION OF ACCIDENTS WITH PRODUCTS OF COMBUSTION IN WHICH DIERMAYER VENT DAMPERS WERE MENTIONED AS A CAUSE OR POSSIBLE CONTRIBUTING FACTOR UPDATED TO MARCH 15, 1976

No.	Accident locality	Year	In-stalled	Age of damper	Apppliance	Fatalities	Cause of accident
1932 MODEL							
1	Amberg.....	1957	(¹)	(¹)	Unknown.....	1	Damper forcibly deformed.
2	Witten.....	1963	1957	6	Vaillant instantaneous water heater.	2	Damper housing not seated properly in collar of draft diverter. Interference between damper plate and vent pipe. Since the damper had worked correctly 6 yrs prior to the accident a change in the vent system must have been made.
3	Mannheim.....	1963	1958	5	do.....	1	Person died of carbon monoxide poisoning in the bathroom no detailed investigation performed damper functioned.
4	Hannover.....	1964	1957	7	do.....	1	Damper not seated properly in draft hood. Damper binding in vent pipe. Vent had been modified by user.
5	Munchen.....	1966	1954	12	do.....	2	Damper not seated properly in draft hood and binding in vent pipe. Vent had been modified.
6	Essen.....	1967	1955	12	do.....	1	Damper not seated properly in draft hood. Damper plate binding. Vent had been modified.
7	Aachen.....	1967	1963	4	Junkers instantaneous water heater.	1	Damper functions correctly. Build-up between fins of heating coil causes temperature of less than 155° F at draft hood outlet.
8	Buchen.....	1969	1956	13	Vaillant instantaneous water heater.	1	Reinstalled upside down by user.
9	Stuttgart.....	1974	1965	9	Junkers instantaneous water heater.	1	Bimetal helix forcibly deformed and incorrectly re-installed by user. Also high CO output of burner.
10	Munich.....	1974	1964	10	Wamsler room heater.	2	Vent gas temperature rose to 900° F. Rivet between damper disk and helix became loose.
1960 MODEL							
1	Zorneding.....	1967	1962	5	Junkers instantaneous water heater.	1	Vent damper installed correctly, functions properly. Cause of accident: combination of high CO due to build-up on burner and back-draft.

¹ Unknown.

Senator ABOUREZK. It is my understanding that both Mr. Kutzner and Mr. Diermayer are manufacturers of vent dampers. That is correct, it is not?

Mr. DIERMAYER. I am a coowner of patents. Mr. Kutzner is the manufacturer of the dampers.

Senator ABOUREZK. It is also my understanding that there is a difference in application between your vent damper and the vent damper manufactured by Mr. Woolfolk, is that correct?

Mr. DIERMAYER. Yes; that is correct.

Senator ABOUREZK. In other words your damper is used primarily on gas-fired water heaters and Mr. Woolfolk's damper is designed for gas-fired forced air furnaces.

Mr. DIERMAYER. In Germany the thermally controlled dampers are applied approximately 50-50 between water heaters and room heaters. The forced air furnaces that are used in this country are very rare in Germany.

Senator ABOUREZK. In your statement you indicate that thermally controlled vent dampers have been brought to the attention of the American Gas Association and the Z-21 Committee.

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. I take it that there is no standard in this country at the present time for thermally controlled vent dampers?

Mr. DIERMAYER. No, sir. In fact, the present proposed form of the standards for vent dampers excludes the use of thermally controlled dampers.

Senator ABOUREZK. I take it that until there is a standard you are not permitted to sell the thermally controlled vent damper in the United States, is that correct?

Mr. DIERMAYER. Yes, sir, that is correct, and no attempt has been made to sell it.

Senator ABOUREZK. Now, you indicated that approximately 900,000 units of the 1932 vent damper were sold and that there were a total of 10 fatal accidents involving that model, is that correct?

Mr. DIERMAYER. I'm sorry. Involving?

Senator ABOUREZK. With the 1932 damper there were 10 accidents.

Mr. DIERMAYER. Ten accidents, yes.

Senator ABOUREZK. And there were 10 fatalities?

Mr. DIERMAYER. I think 11 fatalities. One moment please. [Perusing documents.] In two cases there were two fatalities. In the other cases there was one fatality each.

Senator ABOUREZK. With respect to the 1960 model, there were approximately 500,000 units sold, and there was one accident with those?

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. Now, did that accident result in a death? Did somebody die?

Mr. DIERMAYER. Yes, it did. However, this accident has been caused by backdraft, and we claim that it would have happened without the damper. In other words, the accidents enumerated here are accidents that happened in gas installations, in the complete gas installation.

And since a damper was installed, had been installed, in this installation, it was mentioned as an accident in which the damper might have been a contributing factor.

Senator ABOUREZK. In other words, the accident with the 1960 model was not caused by the damper itself?

Mr. DIERMAYER. No, sir.

Senator ABOUREZK. Nor by its installation?

Mr. DIERMAYER. No.

Senator ABOUREZK. Now, with respect to the 1967 model there have been 1½ million sold and there have been no accidents, is that correct?

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. Is there any way to estimate how much energy might be saved in the United States if vent dampers were permitted to be used on gas fired water heaters?

Mr. DIERMAYER. I have not made this calculation, but depending on the circumstances, 7 to 30 percent can be saved. So if the average is somewhere around, even in the lower range, 10 percent, the amount of gas saved would be considerable.

The payback is very short since the installation—the device itself and the installation is relatively inexpensive.

Senator ABOUREZK. From the table¹ attached to your statement, it appears that most of these accidents occur because of a modification

¹ See p. 628.

by the homeowner himself. Apparently the vent damper had been installed correctly, but at some point later, the homeowner modified the vent or the device itself, is that correct?

Mr. DIERMAYER. That is correct, Mr. Chairman.

Senator ABOUREZK. Does the 1967 model offer any greater protection in this regard?

Mr. DIERMAYER. Yes, sir. In the old model it was possible that the damper plate would get in contact with another building element, the draft hood, for instance, or the vent pipe. This is not possible any more with the new model.

Senator ABOUREZK. Do you know how many fatal accidents have occurred in Germany from gas furnaces without dampers of any kind?

Mr. DIERMAYER. No, sir, not known.

Senator ABOUREZK. Were you in the hearing room yesterday?

Mr. DIERMAYER. Yes, we were.

Senator ABOUREZK. Did you hear members of the American Gas Association testify that one of the dangers of field installation is that the vent damper might be improperly installed by the homeowner, did you hear that?

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. Now, in light of the accidents which have occurred with the thermally-controlled vent damper because of the homeowner tampering with the vent pipe or with the device, what is your response to the American Gas Association's position?

Mr. DIERMAYER. My response is that it is not possible to eliminate the tampering. A homeowner cannot be kept from tampering with something that he has in his home. So accidents of that kind will always happen.

The only thing a designer, a manufacturer can do is produce a product that is safe as possible. For instance, with this damper here, the only installation error he can make is that he puts it upside down, and this doesn't affect the operation of the damper as it did with the older models.

Senator ABOUREZK. With the new model it would still work if it were put in upside down?

Mr. DIERMAYER. It would still work, yes.

Senator ABOUREZK. Now, of the 3.6 million dampers that have been sold in Germany and other European countries, what percentage, if you know, was installed in the field?

Mr. DIERMAYER. Over 95 percent. Only in recent years manufacturers have started installing dampers as original equipment in the factory.

Senator ABOUREZK. In your statement, you speak only of thermally-controlled vent dampers. Does Kutzner-Weber manufacture mechanically-controlled vent dampers?

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. Was there any reason why you did not discuss mechanically-controlled dampers in your statement?

Mr. DIERMAYER. The experience with electro-mechanically-controlled dampers has been very short. They have been in production now for 1½ years, and insufficient information has been collected to talk about that.

Senator ABOUREZK. Would you agree that the mechanically- or electrically-controlled device is safer than the thermally-controlled device?

Mr. DIERMAYER. No, sir.

Senator ABOUREZK. You do not believe it is safer.

Now, according to the figures you have given us, six of the accidents which occurred with the thermally-controlled device were due to the vent damper plate being unable to open. Now, if this had been a mechanical or an electrical device and the vent damper plate had been unable to open properly, would these accidents have occurred?

Mr. DIERMAYER. They would not have happened with electro-mechanically-controlled dampers because of their different construction.

Senator ABOUREZK. OK. Three of the accidents occurred because the user, the homeowner, had either deformed the vent damper itself or had reinstalled it improperly. Now, again, if this had been a mechanical or an electrical device, would these accidents have happened in those particular cases?

Mr. DIERMAYER. No, they would not have happened; however, we have to stress that this refers back to the 1932 model, not to the existing model of thermally-controlled damper.

Senator ABOUREZK. As I read your statement, you are saying with any new product there are problems that occur, is that correct?

Mr. DIERMAYER. Yes, sir.

Senator ABOUREZK. However, from 43 years of experience, you have been able to iron out those problems and you have been able to manufacture a device which is basically fail-safe, is that a fair statement?

Mr. DIERMAYER. Yes, that's correct. It is not fail-safe in the strict sense of the word, but as I mentioned before, there are many systems that are not fail-safe; however, the problems as you mention have been designed out of the product and it is in practice, in practical use, it is fail-safe.

Senator ABOUREZK. You believe it is extremely safe?

Mr. DIERMAYER. It is extremely safe. That is a fair statement, yes.

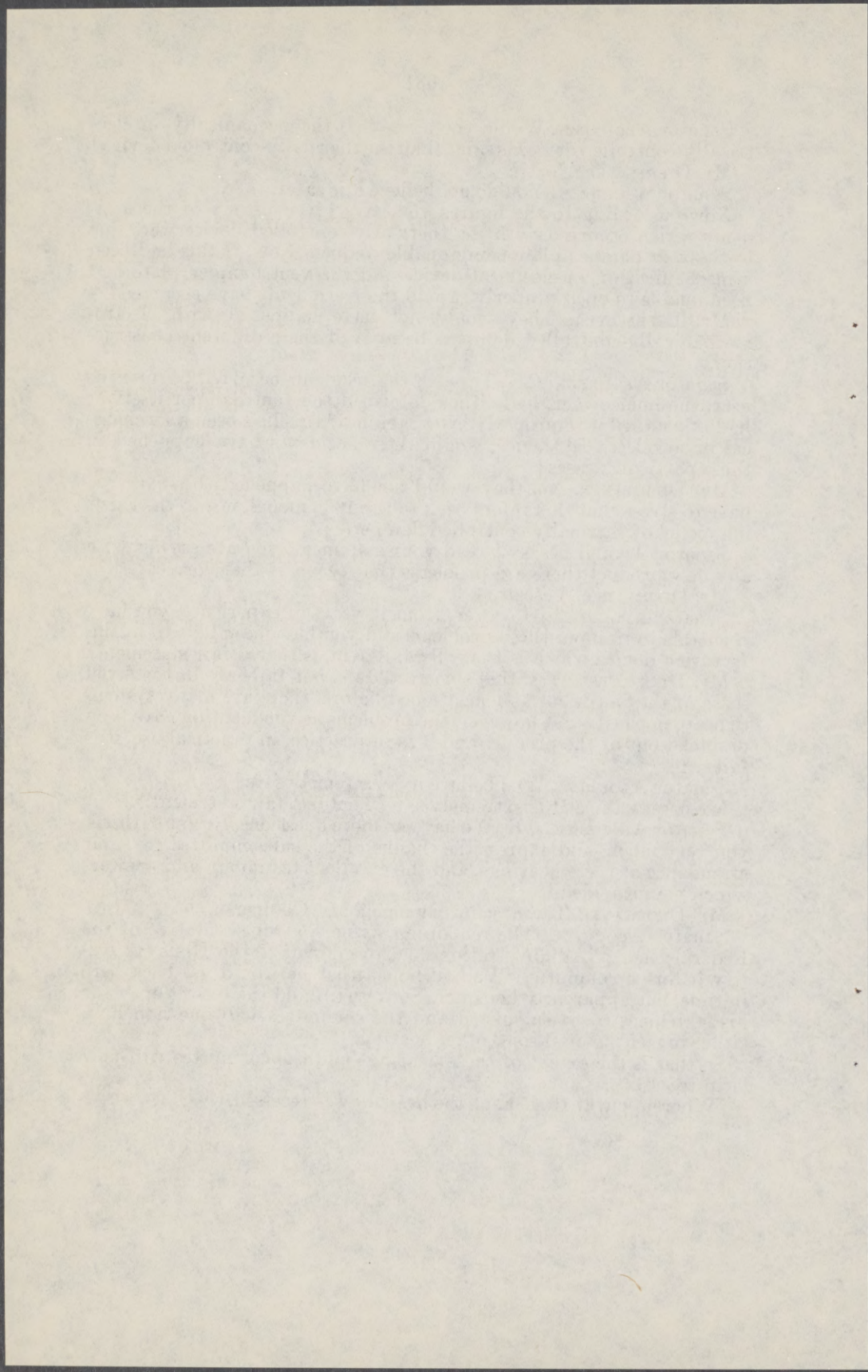
Senator ABOUREZK. OK. We have no more questions. I want to thank you very much, and express the thanks of the subcommittee for your attendance at these hearings, and the excellent testimony and answers which you provided.

Mr. DIERMAYER. Thank you very much, Mr. Chairman.

Senator ABOUREZK. The remaining witness, a representative of the Federal Energy Administration, had to go over to the House to testify before a committee. We had hoped that he would get back here in time, but apparently he is not. So we will hold the record open for his statement to be submitted and the committee will question him, either in writing or at some other hearing.

So that is the extent of these hearings and the committee will now be in recess.

[Whereupon, at 10:45 a.m., the hearing was recessed.]



MATERIAL REQUESTED AT THE HEARINGS

SUMMARY OF LETTER BALLOTS FOR ADOPTION OF PROPOSED STANDARD FOR AUTOMATIC VENT DAMPER DEVICES FOR USE WITH GAS-FIRED APPLIANCES

Attached is a summary dated April, 1974 of the December 24, 1973 and February 21, 1974 letter ballots concerning the approval or disapproval by the Z21 Committee of the proposed American National Standard for Automatic Vent Damper Devices for Use With Gas-Fired Appliances, Z21.61.

Although the unfavorable vote of the letter ballots indicates that a majority of the Committee does not wish approval of the proposed standard, any decision to withdraw the proposed standard from consideration by the American National Standards Institute (ANSI) has been held in abeyance until the draft standard and the enclosed letter ballot summary can be considered by the Committee.

It might also be pointed out that no comments have been received as a result of ANSI's concurrent public review period, which ended March 18, 1974.

To Be Considered as Minutes

SUMMARY OF DECEMBER 24, 1973 AND FEBRUARY 21, 1974 LETTER BALLOTS TO AMERICAN STANDARDS COMMITTEE Z21

Under date of December 24, 1973, a letter ballot was distributed to the members of American National Standards Committee Z21 requesting an expression on adoption of the Draft American National Standard for Automatic Damper Devices for use With Gas-Fired Appliances, Z21.61, which was being submitted to the Z21 Committee and at the same time to the American National Standards Institute (ANSI) for its concurrent public review procedure in order to expedite approval as American National Standard.

The results of the December 24, 1973 letter ballot were as follows:

Approve—33
Disapprove—7
Not Voting—1

The following Committee member comments were received in conjunction with the December 24, 1973 ballot returns:

From Mr. Jack Allen (International Association of Plumbing & Mechanical Officials):

"This disapproval is not of the specific text but of the device itself and the dignity it may be accorded by being covered by an ANSI Standard.

"It is my belief that the value of the energy saved is far out weighted by the potential results of malfunction, or improper or misapplication of an 'add on device' such as this."

From Mr. Willard L. Amann (Southern Building Code Congress): "I object to any device being installed in a venting system in the field; that can affect the operation and safety of fuel-fired appliances; and offers a potential hazard to the health of the user of such appliance."

From Mr. John J. Bacon (American Gas Association): "I abstain from voting on the proposed standard as the Massachusetts Gas Code does not recognize the use of automatically operated Dampers."

From Mr. Warren Eichorn (Gas Appliance Manufacturers Association): "By requirement, Z21.47 paragraph 1.26.10 'Flue dampers shall not be used' prohibits their usage as a part of the draft hood. The same prohibition should apply to the entire venting system when safety is involved.

"Many utilities state that such devices are not allowed in their areas. Vent dampers are not allowed in the appliance standards governing Z21.16 Gas Unit Heaters, and Z21.34 Gas Fired Duct Furnaces, and Z21.49 Gas Fired Gravity and Fan Vented Wall Furnaces. If it is unsafe for an appliance manufacturer with his trained personnel to design and build such a device into an appliance, how can it be safe for such a device to be sold as an accessory to be installed by anyone on any gas appliance with a draft hood?"

"In Canada automatic flue dampers are not allowed. This position was reaffirmed during the 19th meeting of the Interprovincial Gas Advisory Council meeting of June 5-8, 1973 and is Item 60 in the minutes of this meeting.

"A vent damper may prevent heat loss through the vent but let us remember that a warm stack is beneficial to the safe operation of a gas appliance. A warm (room temperature) stack has a flow path for flue products to follow as it establishes draft. Condensation of flue products is not normally a problem with these warm flues. Severe corrosion problems could rapidly develop with gas appliances discharging flue products into cold vents with the reffiring of the appliance.

"Appendices A and B of the minutes of the 21st meeting of the Gas Furnace Division held on December 12, 1973 is a summarization of 64 indepth investigations of product related injuries associated with gas furnaces. This is from the Bureau of EPIDEMIOLOGY, The Consumer Product Safety Commission. In reviewing the summary shown in the Appendix B we see that vent problems resulted in one (1) explosion; vent problems were the cause of eleven (11) of the twelve (12) carbon monoxide poisonings; vent problems were the cause of five (5) of the five (5) gas inhalation accidents; and back draft was one (1) of the four (4) miscellaneous accidents. Vents and problems with vents resulted in 18 of the 64 accidents investigated. 28 percent of accidents associated with gas furnaces are associated with vent problems. Adding complexity to the present venting system can only increase the number of accidents that would be associated with the furnaces and the resultant injuries and in some cases death to people. A failure of a flue damper device which results in a blocked flue condition or a blocked flue condition caused by other conditions must commonly result in asphyxiation because all of the flue gases products from the appliance are forced into the dwelling.

"Flue dampers are presently banned from use by many utilities, individual appliance standards and in Canada. 28 percent of the accidents associated with gas furnaces are the result of vent problems when dampers are not allowed. I see the possibility of severe problems developing from the use of such devices and recommend that this standard not be adopted."

From Mr. David F. Hansen (American Gas Association) :

"1.5.6 of the September, 1973 Second Draft text provides for an interlock with the burner. It depends upon correct wiring in the field.

"The two essential ingredients in providing safety from the combustion process for vented appliances are burner adjustment and venting assurance. I do not interpret the language of 1.5.6 to require the damper to remain in an open position if the burner interlock is not installed in the field. I suggest it is too great a risk to assume the interlock will in fact be installed in the field according to instructions.

"Suggest a provision be added that requires the damper to remain open if the interlock is not completed to the burner control."

From Mr. Edmund R. Lord (U.S. Department of the Army) : "The Army position is that all practical means should be used, as soon as possible, to conserve energy. The simple, safe device defined by this new ANSI Standard is such a means, particularly if it is field-installed on existing gas-fired systems, as well as new systems. Incidentally, the new accelerated approval procedure for ANSI standards (concurrent submission to the Z21 Committee and Board of Standards Review) will prove its value here by speeding up actual installations of this energy-saving device at a time when conservation of national energy resources is critical."

From Mr. William V. McDonnell (Gas Appliance Manufacturers Association) :

"In my view, we must be quite cautious to assure ourselves that such a Standard provides the consumer with proper safety protection since the malfunction of such a device could present a hazard quite disproportionate to the potential fuel savings. As I understand the Standard, the two key paragraphs associated with safety are 1.5.6 and 1.6.

"In the case of the first paragraph mentioned, it is my understanding that the burner will not be permitted to come on until the damper is proved in the full open position. Further, if during the operation there should be a malfunction of a damper causing it to leave the fully open position, the burner will be extinguished.

"Paragraph 1.6 indicates to me that there will be a timed delay on damper closing based on temperature. Thus, if there is a failure in the burner control system, the damper will respond to temperature and remain in the open position as long as temperatures in excess of 225° are maintained.

"If my understandings are correct, then the consumer is partly protected with redundant safety—as long as the automatic damper, the operating interlock, and the temperature control are integrated into a single package and wired and tested by the manufacturer. This, of course, could be done by the automatic damper manufacturer or a gas equipment manufacturer as he integrates such a product into a piece of equipment he manufactures. At this point, I would be very prepared to vote 'yes' on this Standard.

"However, it is my understanding it may be merchandised to the 'broad, do-it-yourself market' out of the hands of this industry's professionals. It seems to me that our alternatives are to assure ourselves that potential installation, regardless of the competence of the installer, is absolutely foolproof or limit installation to the hands of our industry's professionals. There have been too many tragedies over the years to invite an incompetent to tamper with the venting of a gas burning appliance, unless we are convinced he cannot err.

"I do not have such assurance after reading the draft Standard and therefore, request that it be placed on the agenda for discussion and conclusion at the next Z21 Committee meeting."

From Mr. Henry H. Miller (American Gas Association): "In commenting on the draft text, we questioned the possibility of cyclic action of the damper when installed on old units having large or multiple pilots. Cyclic action would appear to be possible and would defeat the primary purpose of the device. We still feel strongly that either greater clearance should be provided or the installation should be limited to some maximum pilot rate."

From Mr. Edward A. Norman (Gas Appliance Manufacturers Association): "To vote against a potential fuel saving device today is similar to voting against Motherhood, regardless of whether the device lives up to claims or not.

"The device in question is to presumably be field installed. In an earlier letter I noted that such field installation by unqualified persons or firms could result in damage to the original heating system or create a potential hazard. As a manufacturer of heating devices, I am not desirous of assuming responsibility for that equipment if a field installed item is placed downstream in the venting system of my appliance. Further, it might become necessary to label my appliance with a disclaimer for any changes or additions in the venting system differing or altering the system from the way it was originally certified. The installer of the 'vent damper device' should assume all liability resulting and this is not likely to happen as you well know.

"The 'Automatic Vent Damper', if approved, will become a Listed Accessory. Prior to this time, I was always under the impression that a Listed Accessory was also tested on or with the device it was intended to be used with. In this instance, such is apparently not the case. The automatic damper can be installed downstream from any furnace, water heater, etc., venting system regardless of how old the appliance is, by anyone hoping to save 1 or 2 percent of the fuel bill.

"If the automatic vent damper device were to be tested in conjunction with each manufacturer's appliance, then I think that all of the foregoing objections could be reconciled."

From Mr. Lee E. Rogers (Naval Facilities Engineering Command): "Standard should be withdrawn. The use of these dampers is against most building codes. They can create very dangerous conditions resulting in furnace explosion. Also, vent corrosion, draft problems, and operating malfunction may occur."

From Mr. W. J. Smith (Underwriters' Laboratories, Inc.):

"Electrical interconnection of these devices with existing appliances in the field may disturb factory-furnished wiring of the appliance and/or negate safe factory-furnished appliance wiring arrangements. Although this danger is alluded to in Paragraph 1.2.7, we believe that the only acceptable arrangements should be those that require electrical interconnection only at the power supply connections to the appliance. Any arrangement which necessitates breaking into factory-furnished appliance limit control or gas valve circuits should not be permitted. Since the device is required to be equipped with an interlock (i.e. a safety control) the electrical interconnection should not be through the thermostat (i.e. non-safety) circuit.

"Table III includes the electrical spacings required up to 600 volts. Some of the spacings are substantially less (to enclosure spacings of $\frac{1}{4}$ versus $\frac{1}{2}$ inch, for example) than those included in numerous other ANSI Z21 and UL Standards. We are not aware of any installation or use factors for these devices which may serve as a basis for reduction of electrical spacings. If it is the intent that the devices covered by the proposed Standard be limited to not more than

2000 volt-ampere and 300 volt then that intent should be expressly stated. The spacings given in Table III would then be acceptable provided the heading of the first column were revised to specify not more than 300 volts and the heading of the second column references energy limiting Class I circuits of not more than 30 volts.

"The continued operation test (Paragraph 2.8) is to be conducted with the device alternately cycled using air at room temperature and air heated to 575 ± 25 F. So as to adequately determine the corrosive influence of the products of combustion, the test should be conducted using the products of combustion from a gas appliance and not merely heated air."

From Mr. John A. Spence (Canadian Gas Association) :

"The Interprovincial Gas Advisory Council (Canadian Provincial Inspectors) reaffirms their previous decision that 'Automatic Flue Dampers were unacceptable on the basis that no unnecessary device should be allowed in a venting system.' (June, 1973)

"Personally, the standard, insofar as construction of the automatic Damper, as written, is good. However, it does not include any provision to test the unit for spillage, which could be inevitable in certain parts of the continent that experience sub-zero weather which could interfere with performance in that with a cold chimney the dew point would be much lower in the chimney resulting in condensation problems, which I outlined in my letter of the 2nd October 1973. (copy attached)

"In view of the Interprovincial Gas Advisory Council's decision on this appliance in Canada and as the questions outlined in my previous letter have not been answered, I have no recourse but to disapprove or abstain from voting on this proposed standard."

From Mr. W. L. Walls (National Fire Protection Association) : "I approve reluctantly and only because these are recognized in NFPA No. 211."

In view that negative votes had been cast against the proposed automatic damper standard and in line with ANSI procedures for its standards committees, all comments received including those accompanying the objectors' negative votes were presented in an additional letter ballot dated February 21, 1974 in the event that members wished to reconsider their vote in the light of the comments received.

The results of the February 21, 1974 letter ballot were as follows :

Change vote—16

Do not change vote—18

Ballots not returned—7

Assuming those ballots not returned would indicate no desire to change the original vote, the final results of the December 24, 1973 and February 21, 1974 letter ballots on the adoption of the draft standard for automatic vent damper devices were as follows :

Approve—17

Disapprove—22

Not voting—2

Although the unfavorable vote indicates that a majority of the Z21 Committee does not now wish to approve the draft standard for automatic vent damper devices, any decision to withdraw the proposed standard from ANSI consideration is being held in abeyance until the draft standard and the results of these letter ballots can be considered by the Z21 Committee at its April 10, 1974 meeting.

The following addition Committee member comments were received in conjunction with the February 21, 1974 ballot returns :

From Mr. Sterling E. Apgar, Jr. (National Environmental System Contractors Association) : "I am in agreement with Mr. Eichorn's comments in his letter of February 15, 1974, particularly concerning condensation."

From Mr. John J. Bacon (American Gas Association) : "I wish to change my abstention to a vote of disapproval. I am opposed to the use of automatic dampers in gas appliance vents. Some of my reasons for my opposition are :

"1. Installation of a damper of this type would mean a loss when the damper is in the closed position, of the present capability of the venting system to remove escaped gas from within the appliance.

"2. There would be little or no control over obtaining an installer with the high degree of expertise required to ensure a completely safe and proper installation."

From Mr. Walter Blanck, Jr. (Association of Home Appliance Manufacturers) : "I agree with the opponents of this Standard that there is not enough assurance that *all* field installations would preclude failure through an improper installation."

From Mr. Howard E. Brehm (Gas Appliance Manufacturers Association): "I desire to change my vote dated January 7, 1974 because there appear to be enough valid questions raised by a broad spectrum of experienced people regarding both the safety and the performance of the Automatic Vent Damper Devices to warrant further study by the Task Force on Standards for Automatic Dampers for Use on Gas Appliances before the final standard is released. Such further study is recommended."

From Mr. J. S. Chalmers (American Petroleum Institute): "As the API Representative, it would be imprudent of me to vote against any fuel saving device; however, due to the controversy as to the safety merits of the Automatic Vent Damper Devices, I would like to change my approval vote to an abstention."

From Mr. W. L. Clayton (American Gas Association): "The overwhelming evidence put forward in the comments and letters of other committee members is that the device would be unsafe. Therefore change my vote to 'no'."

From Mr. C. F. Coleman (American Gas Association): "I have reaffirmed my 'yea' vote as to the Standard, itself. In this connection I should like you to be aware that the vote goes to the Standard, itself, which we believe to be adequate, but does not necessarily endorse the use of the device. On the contrary, we have previously questioned the use of automatic dampers on gas-fired equipment and our thinking has not changed. In our colder climate it is not uncommon for flue systems to require constant drafts to eliminate spillage on start-up."

From Mr. Nicholas DeHaas (General Services Administration, Federal Supply Service):

"1. I concur with the great majority of comments and letters of disapproval enclosed in and with Mr. Mattocks' letter of February 21, 1974.

"2. Primarily, this change of vote is motivated by the comments regarding the potential for malfunction and resulting hazard when a damper device such as described in the *proposed standard* is 'added-on' to an existing system for which it was not specifically designed; and the lack of adequate protection against such an occurrence in the proposed standard.

"3. I, also, hope that a strong negative reaction for reconsideration of this proposal will stimulate an active and detailed discussion of Automatic Vent Damper Devices at the April 10 ANSC Z21 Meeting (especially thermally actuated bimetal damper devices referred to in Agenda Item 5.)"

From Mr. Louis H. Flanders, Jr. (Factory Mutual System):

"Please change my former vote to now read 'negative'.

"Further consideration convinces me that *safety* far outweighs possible energy conservation with the appliances involved and 'do it yourself' field installation cannot be controlled or relied on for safety and correctness of installation."

From Mr. Joseph Grumer (U.S. Bureau of Mines): "Since these vent dampers may be installed in the field by anyone, there exists strong possibilities that the devices will be improperly installed; malfunction may result in gas explosions or spillage of combustion products into inhabited areas."

From Mr. Sam K. Jolly (Department of Health, Education and Welfare): "I believe this damper could be a safety hazard in some cases. This hazard more than offsets the fuel saving."

From Mr. John M. Lyle (Gas Appliance Manufacturers Association):

"As indicated, my vote is now negative—the reasons are pretty much as documented when comment was submitted at point of review.

"1. No allowance for testing at temperatures below 32° F, some experience indicated control problems at extremely low shipping temperatures.

"2. It appeared corrosion aspects were inadequately defined and ultimately exposure to condensate and halogenated hydrocarbon contaminated flue products could be installation oriented problems.

"3. Installation instruction definition is not adequate and since this could be a customer add on need strengthening.

"4. Local jurisdictions in some cases do not allow these devices—although in itself this should not block a standard—in this case, there may be reason to believe a field applied addition in the critical vent system area is not desirable.

"I note some of the other negative votes are supported with similar reasoning along with further negative comment."

From Mr. W. D. Malmstedt (American Insurance Association): "After reading the comments contained in the February 21 letter from E. O. Mattocks, it appears that there are three problem areas: (1) possible improper equipment installations; (2) disturbing the integrity of existing controls on the appliance; and (3) a need to further revise the proposed standard. In view of these prob-

lems, we desire to change our affirmative ballot on this subject to a negative one."

From Mr. Harold J. Moss (Gas Appliance Manufacturers Association): "(Voting negatively) Because of the remarks of the men that know much more about vent devices than I."

From Mr. Lester R. Pickup (American Gas Association):

"I desire to change my vote from approval to 'not voting' because:

"Uniform mechanical code (Section 903(b)) would permit use of an 'approved' automatically operated damper. (L.A. City Code (Section 95.3520) however would not, as presently written—though amendment might be made.) and

"Considering the installed cost of the device, and our relatively mild climate, it did not appear that many would be installed in our serving area."

From Mr. R. C. Swagler (American Gas Association):

"I am opposed to any action by the Z21 Committee or by ANSI which would constitute approval of any type of automatic damper for field installation on a gas appliance. My reason is that action to achieve the potential marginal fuel saving can not be justified in the face of the numerous documented opportunities for malfunction with resultant serious hazard to the life of building occupants.

"I also wish to be recorded as opposing approval of an automatic damper factory-installed on a gas appliance. I do not believe that the potential marginal fuel saving can be justified at the expense of losing the useful ventilation induced by a constant-functioning flue or chimney."

R. E. CRAMER,
Administrative Secretary.

APPROVALS & CODES,
October 2, 1973.

Mr. WALTER H. JOHNSON,

*Task Force on Standards for Automatic Dampers for Use on Gas Appliances,
Cleveland Ohio.*

DEAR MR. JOHNSON: I have reviewed the second draft, American National Standard for Automatic Damper Devices for Use with Gas-Fire Appliances and submit the following observations:

1. The Canadian Gas Association did certify the Vent-O-Matic by special test and according to the Director of Approvals and Research, they found the unit mechanically sound and that it functions under all safety factors or malfunctions. However, the following year the Interprovincial Gas Advisory Council, (The authorities having jurisdiction in each province of Canada) withdrew their approval. (See attached letter).

2. In view of the review of all National Codes as outlined in the third paragraph of your letter, I am still concerned in the construction, operation, performance areas, etc., the latter is basically mechanical and I ask if the performance does not bear consideration as to safety of operation, especially if used in areas of this continent that enjoy zero to sub-zero weather and when attached to different types of chimneys such as Class A-Outside Chimneys, B, Vent, etc.

Will not a cold chimney result in a spillage of the products of combustion on the initial opening of the damper through the draft diverter? How long will this prevail until a positive draft is created by the products of combustion?

Will this not also lower the dew point in the chimney, resulting in condensation occurring at a much lower point in the chimney, resulting in wet walls and erosion of the brick?

Would this not be more critical between a temperature of 32 degrees F to zero when the appliance is not cycling as often as in extreme weather?

Assume that the unit is installed on a furnace connected to the same flue as a water heater, the latter not equipped with such a device.

I'm sure that the Task Force has given serious consideration to such problems, however, I would like to be assured actual tests have been carried by an independent source as to the health hazards, especially as to carbon monoxide.

Living in a region that experiences 20 below zero weather, until I can be assured otherwise, I am not convinced that such an automatic device would not result in spillage or condensation problems, which outweigh the savings, with the possibility of ice forming in the chimney which is totally exposed for 20 feet.

In conclusion, I am not satisfied that the proposed Standard includes sufficient tests for safety as mentioned.

Yours very truly,

J. A. SPENCE,
Manager.

AMERICAN GAS ASSOCIATION,
WASHINGTON HOT LINE,
October 20, 1972.

Following is the text of the Jack Anderson article on the Vent-O-Matic device as it appeared in the Washington Post for Friday, October 20, 1972.

GAS INDUSTRY STALLS ON FUEL SAVER

(By Jack Anderson)

A device that would cut the homeowners' gas bills by 20 to 30 per cent has been kept off the market by the American Gas Association.

The fuel saver, known as Vent-O-Matic, is an automatic damper which can be attached in the flue of a gas furnace. It has been approved by the Canadian Gas Association, which tested the device and found it safe.

But the AGA, after four years of stalling, hasn't even started the testing. As a practical matter, no gas furnace fixture can be marketed and installed until it has been tested and approved by the AGA, because contractors won't use it.

The AGA, of course, is formed by the gas industry which would like to increase, not decrease, the homeowners' gas bills. The association was hardly enthusiastic, therefore, about the Vent-O-Matic fuel saver when it was submitted for testing back in 1968.

Routine tests were run on three basic types of furnaces. The damper was found to be safe, and the proper certificates were issued. But AGA withheld general approval on the ground that no specific standards existed for the Vent-O-Matic device, and offered to test it on any furnace submitted. But the purchase price of all types of furnaces in use would have cost several million dollars. The manufacturer asked that standards be drawn up instead.

The matter was turned over to AGA's approval committee, known as Z21. Finally, in 1971, the committee got around to authorizing a task force to test the Vent-O-Matic damper and write the standards. But a year later, no task force had been established. Last April, the Z21 committee re-authorized the task force. But still nothing has happened.

The AGA claims it can't get anyone to chair the task force. But the association refused to tell us who had turned down the chairmanship and how many people had been approached. My reporter, Ken Fisher, could locate only two people who had been offered the job. One was a California gas company official who said he declined because his company couldn't benefit from the device. The other, a Boston fire protection official, said he lacked the expertise.

After spending weeks talking to dozens of people familiar with the facts, we have concluded that the AGA is deliberately stalling. An AGA spokesman explained that it takes time to test a new device to make sure it is safe. But the AGA hasn't even set up a committee to begin the tests.

Homeowners, meanwhile, continue to pay for gas that the device could save.

Following is the A.G.A. statement of October 20, issued in response:

"The contention in an article by Jack Anderson appearing in today's newspapers that the gas industry is 'keeping off the market' a fuel-saving device in order to sell more natural gas is absurd.

Since the gas industry, through A.G.A., publicly recognized the gas shortage four years ago and started speaking out on solutions needed to solve it, it has simultaneously pursued aggressive programs of research and engineering to conserve gas and to improve all types of equipment and appliances as well as a vigorous advertising and public relations program aimed at encouraging the conservation of natural gas. As part of this effort for the past two years A.G.A. has used a wide variety of methods to urge gas consumers, principally homeowners, to reduce their fuel use and to tell them how to do it. The industry was among those who urged that the Federal government launch a forceful national fuel conservation program. As part of this program, the American Gas

Association has cooperated with various agencies of government, including the President's Committee on Consumer Interests and the National Bureau of Standards, in producing such material as the widely distributed brochure on "Seven Ways to Reduce Fuel Consumption in Household Heating . . . through Energy Conservation." Over the past five years 75 percent of A.G.A.'s research effort has been devoted to increasing the efficiency of gas usage. There certainly is no self-interest reason for the industry in any way to impede gas conservation at a time when companies are unable to meet current and prospective demands.

Mr. Anderson's statement that the Canadian Gas Association tested the device in question and found it safe falls short of the truth. A.G.A. is advised by the Canadian Gas Association that the reference to it is "erroneous and misleading." The device, the Canadian Gas Association advises, was tested in its laboratories and a preliminary report indicated that it appeared to function satisfactorily. Subsequently, however, at a meeting of the chief gas inspectors of the Canadian provinces, held on May 31, 1971, it was concluded that it was unwise to permit installation of this device or a similar device due to the risks of blocking the vent, creating a potential hazard. There is no current approval in Canada for the device and the manufacturer has been so advised.

It should be further noted that Canadian testing never substantiated the claims of 20-30 percent saving made by the manufacturer.

Measurements carried out by the American Gas Association's Research & Engineering Division indicate the maximum possible savings of fuel to be in the range of 3-6 percent. Even this potential saving must be carefully weighed against possible safety hazards in the home.

The procedure for testing gas-burning equipment requires the prior establishment of a standard against which to measure the device. Standards are developed by a committee of the American National Standards Institute—not an A.G.A. committee—comprised of government, insurance, engineering and other non-gas industry representatives. The gas and appliance manufacturing industries have less than half of the memberships on the committee. Federal agencies represented on the committee are the Department of Housing and Urban Development, Department of Health, Education and Welfare, Department of the Army and the Department of Interior's Bureau of Mines. Other organizations represented include the International Association of Plumbing and Mechanical Inspectors, the National Fire Protection Association, the American Public Gas Association and the American Home Economics Association.

The overriding concern of this committee—the American National Standards Institute Committee Z-21—is safety. Obviously, its members would be failing in their duty if they failed to give full and deliberate consideration to the possibility that a new device might be unsafe to gas users.

As A.G.A. has stated in numerous public forums, including Congressional Committees, we welcome any workable procedures which would speed up the standards making process.

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

GRANDINETTI PRODUCTS, INC.,
Lynwood, Calif., February 14, 1975.

Mr. JOHN RAY,
Assistant Counsel,
Antitrust and Monopoly Division,
Washington, D.C.

DEAR MR. RAY: I am replying to your telephone call as of February 12, 1975, in reference to the article I have been writing about Underwriters' Laboratories.

Enclosed are copies of articles which were published in the trade papers during 1973, and 1974.

There is also included, an article which I intend to publish in the trade papers very quickly. The enclosed articles pretty much express my findings and opinions as it relates to Underwriters' Laboratories.

I have always contended that competition must have free rein in the marketplace. Underwriters' Laboratories needs competition to keep it on its toes.

Very truly yours,

EDWARD M. GRANDINETTI,
President.

Enclosure.

May 19, 1975

Patricia A. Kelsey
11731 82nd Terrace N.
Seminole, Florida 33542

Dear Ms. Kelsey:

Thank you for your letter of April 30, and most particularly for your interest in Applied Research Laboratories.

First let me attempt to reply to the specific points raised by Mr. Hanning. Enclosed please find the following:

1. A copy of a letter from the Department of Buildings of the City of Chicago dated April 5, 1966 in which the statement is made: "We have, at this point established the fact that your laboratory will be considered a recognized testing laboratory." Although this incident related directly to Fire Door Testing, the statement implies overall acceptance as a recognized testing laboratory.

2. Copies of correspondence with the Housing and Development Administration of the City of New York dating back to April of 1972 in which they state that they do not issue formal approvals for test laboratories. However, they then go on to say that we have been found to be a laboratory "acceptable to the Commissioner."

Patricia I believe these two examples typify the dilemma companies such as ours are faced with in gaining recognition although having received acceptance. It apparently depends upon who you talk to and when. U.L. and to a lesser extent Factory Mutual are household words. We do not entertain any delusions that ARL enjoys the same kind of identity even with certain building inspectors. We attempted to rectify this situation by requesting that our name be included in the Codes along with those of U.L. and/or Factory Mutual. We were advised that in future editions specific reference to names would be omitted in favor of the expression "nationally recognized testing or inspection agency." Therein lies the problem. What constitutes a nationally recognized entity, and how does one attain such recognition? I believe the entire theme could evolve into an important and timely article. The last paragraph in Mr. Underhill's letter, enclosed, attests to the fact that a real need in this area exists in almost every state. Please use this information with discretion, since it is still in the preliminary planning stage.

Ms. Patricia A. Kelsey
May 19, 1975

Page Two

Before expanding on this problem, allow me to preface my remarks by saying we feel U.L. is providing a much needed service, and is an organization with whom we enjoy an excellent rapport. It is my understanding that U.L. once approached Applied Research Laboratories with the proposal that we become one of their field testing laboratories. We declined because a number of factors among which was an independent survey we conducted. We asked the recipients of the questionnaire whether they used a listing and labeling service, if so who and what their experience had been. We consistently received replies as it pertained to U.L. that the "turn around" time was too lengthy and too much "Red Tape" was involved. This is verified repeatedly by unsolicited comments made to me on personal visits to engineers. In some instances when a client feels he cannot live without the U.L. label, he has simultaneously submitted an identical unit to U.L. and A.R.L. This permits him to introduce the product in the marketplace with the A.R.L. label while awaiting certification by U.L.

As a result of my visits, I have formulated the impression that U.L. has a much greater backlog of work in certain areas than their facilities and/or personnel can handle. Evidence of this in recent months as it applies to air conditioning and heating is their insistence that clients set up their own test facilities if they do not already have them. This enables them to conduct the testing at the clients' facility rather than their own. This of course entails considerably more expense for the client both initially and in the form of travel and living expenses.

All these circumstances produce the paradox that U.L. has more work than it can handle while other qualified firms are precluded from obtaining such work because their label is not universally accepted. This in effect has set up a situation, certainly not by intent, that in our opinion really constitutes restraint of trade. We recently received several inquiries from national manufacturers of air conditioning equipment. They were seriously interested in having A.R.L. do the certification of new models they were introducing. However, they apparently made inquiries similar to Mr. Hannings, and must have received the same response since nothing further came of it.

That pretty well defines the problem. The solution is not easy to come by. One logical approach would be to have laboratories certified as qualified to perform certain functions. We are an active member of the American Council of Independent Laboratories, Inc. Before an applicant is accepted as a member, at least two members

Ms. Patricia A. Kelsey
May 19, 1975

Page Three

must inspect the applicants facilities and determine the qualifications of the personnel. Efforts to have such a program established on a state or national level by various organizations has produced no tangible results.

At the moment we are taking a more direct approach. A letter, a copy of which is enclosed, is being sent to the Attorney General of all U.S. States and Territories requesting information on the requirements necessary to gain acceptance in that State. The replies should be most informative.

You and your organization can play a vital role in providing a much needed service for all of industry. You have the means available to bring this problem to the attention of the people in your industry who with a concerted effort could effect the changes necessary to solve the problem. Toward that end we wish to extend an invitation to you and any members of your staff to visit our facilities, meet with our top management people and if you wish set up appointments to discuss the problems involved with some of your subscribers. We will be happy to cooperate with you in every way possible to develop an article which could have a far reaching impact on not only your industry but industry in general.

Sincerely yours,

APPLIED RESEARCH LABORATORIES
OF FLORIDA, INC.

Edward W. Kiefer
National Sales Manager

EWK:1b
Encl.

CHEMISTRY BUILDING

ENGINEERING BUILDING

PRODUCT CERTIFICATION
BUILDING



APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

AEROJET CENTER, STATE ROAD 27
43650 S. W. 232 AVENUE
DADE COUNTY, FLORIDA

New building energy standard is rejected, 72-24; energy source section to be reviewed with ARW on single

by Frank J. Versagi

BOSTON, Mass. — The proposed energy standard for new buildings sponsored by the American Society of Heating, Refrigerating and Air-Conditioning Engineers has been rejected, 72-24, in a vote by the responsible project committee. There were two abstentions and about 20 nonvotes which were counted as affirmative.

The rejection of Standard 90P was chiefly caused by dissatisfaction with that section of the standard concerned with eval-

Reversing its decision of earlier in the week, ASHRAE's board of directors voted on Thursday to authorize the submission of the first 11 sections of Standard 90P to the Project Committee for letter ballot. Further details will be published next week.

uating energy use in buildings by considering the energy source rather than the energy at the building boundary.

A full review of that section has been undertaken and it is expected that it will take two to three months for that section of the standard to be worked through ASHRAE's standards procedures.

ASHRAE issued a press release stating that "a majority of the 122 Project Committee members approved 11 of the 11 sections of the proposed standard."

Nationally accepted testing lab? ARL would like to be

HIACLEAH, Fla. — Fretting over the long turn-around time they experience in getting their products certified by Underwriters Laboratories, some manufacturers of heating and cooling equipment have been looking for another testing laboratory whose seal of approval would be accepted by local inspectors on a broad national basis.

Several thought they had a candidate in Applied Research Laboratories of Florida, Inc. (ARL), a 13 year old independent testing laboratory here with claims for na-

tional recognition. One interested but skeptical manufacturer asked the News to investigate. An interview with Edward W. Kiefer, ARL's national sales manager, indicated that while ARL has done testing on a broad variety of products, which has been accepted in many states, certification of heating and air conditioning equipment has been accepted by inspection jurisdictions in only eight states and two U. S. territories.

Kiefer expressed frustration (Page 3, Please)

Ellen Marshall says:

'When you control the buying, you also control a lot of other things'

ALBANY, N. Y. — There was a warm sparkle in Ellen Marshall's eyes that lent added vitality to her discourse behind the simple metal

by Gordon Duffy

"Control over inventory means

OSAGE BEACH, Mo. — A statement of policy calling for a study of the possible industry benefits to be derived from a single, consolidated association of wholesalers of air conditioning, refrigeration, controls, and sheet metal/machinery was adopted and announced by the board of trustees of the North American Heating and Airconditioning Wholesalers Association (NHAW) at the association's summer convention at a Lake of the Ozarks resort.

The statement suggested that NHAW and the Air-conditioning and Refrigeration Wholesalers (ARW) are the logical vehicles to undertake such a study.

It said NHAW is prepared to appoint members to a special study committee, and it invited ARW to do likewise.

NHAW also urged wholesalers who do not belong to any association to contribute their thoughts to the form and policies of a consolidated association that would best serve the industry.

Although NHAW stressed that no thought of a possible merger was involved, three members at the business meeting voiced their objection to a merger.

As Orville Garrett, of Loman-Garrett Supply Co., Greensboro, N. C., put it: "ARW should be coming to us, not we to them." He

by George

said that the NHAW could not want to lose NHAW's prestige, of Grand Rapids, Mich., that although he understood the ARW, the time to consider the great industry for one wholesaler association.

He emphasized that it is a study and no other matter.

Object to

Sheet

to resor

The board of Sheet Metal and General Contractors will meet today to discuss its action on the newly approved two sections of Form of Underwriting, both of which industry representatives view and prefer.

At Press Time

NEW YORK CITY — Saul Horowitz, Jr., 50, president of the Associated General Contractors and chairman of the Boeing-727 jet near Kennedy Airport. Named 1972 Man of the Year, he was returning from address in New Orleans, La.

(MORE LATE NEWS ON BACK PAGE)

FE Major in Conway C. Burton, A.C.I.L.

How

are sa

MINNEAPOLIS — A credit crunch is fueling a price war between manufacturers and retailers. Many retailers were contemplating a

National testing lab--

(Continued from Page One)

that "it depends on who you talk to and when" whether recognition is granted by local officials.

He cited a letter from the Department of Buildings for the City of Chicago dated April 5, 1966, which said, "We have, at this point, established the fact that your laboratory will be considered a recognized testing laboratory."

Kiefer interprets this statement to imply overall acceptance as a recognized testing laboratory.

But a member of Chicago's ventilating department claimed that only UL is accepted for that type of equipment and then only if it passes a Chicago board.

Kiefer also has a letter from the Housing and Development Administration of the City of New York stating that while the department does not issue formal approvals for testing laboratories, ARL had been "found to be a testing service or laboratory acceptable to the commissioner."

But a city spokesman told the News that Applied Research has been certified only for plastics.

"These examples," said Kiefer, "typify the [problems] companies such as ours are faced with in gaining recognition, although having received acceptance. It apparently depends on who you talk to and when."

He said ARL has requested local jurisdictions to include its name in codes along with Underwriters Laboratories and Factory Mutual. But the reply usually is that future editions of the code will omit specific references to names of laboratories in favor of the expression "nationally recognized testing or inspection agency."

Therein lies the problem, Kiefer said. What constitutes a nationally recognized entity and how does one attain such recognition?

ARL is a member of the American Council of Independent Laboratories. Before an applicant is accepted for membership, at least two members must inspect its facilities and determine the qualifications of its personnel.

Efforts made to establish such a program on a state or national level by various organizations have produced no tangible results, Kiefer noted.

He is trying a more direct approach now. He has written letters to the attorneys general in each state and in each U. S. territory to gain acceptance in their jurisdictions.

In the letters, he said, "The management of Applied Research Laboratories of Florida, Inc., is confident that the specification of a sole or limited number of recognized testing laboratories in state codes was never meant to result in

restraint-of-trade.

"We are sure the intent was to require safety testing in compliance with nationally recognized performance standards conducted by independent testing laboratories with no vested interest in the product under test."

Kiefer believes the replies to these letters "should be most informative."

VIEWS AND TRUTHS AT THE MARKETPLACE

The marketplace requires a free exchange of ideas. The public is the beneficiary of free enterprise by better quality goods and services with lower and more competitive prices. Competition is necessary and vital to maintain a strong society. Without it, competition stagnates. Any product or service which comes on the marketplace, must inure to the best interests of the public. This is true only, if competition is allowed to function freely without restraint.

I wish to illustrate what really happens on the marketplace when a company functions without competition.

The company I will illustrate, is one that I have had many dealings for the past 15 years. This company was put together by the insurance companies to protect themselves from you and I.

This company is called Underwriters' Laboratories, Inc. and incorporated December 3, 1973, under the laws of the State of Delaware. As of October, 1974, it shows ten directors of which three are insurance companies: Great American Insurance Company, Royal Globe Insurance Companies, Aetna Insurance Co.

This company is known on the street as Underwriters' Laboratories. It portrays itself as a not-for-profit company working for the public safety. It tends to create the impression that it is a government agency. Underwriters' Laboratories operates on the public scene with little or no competition.

It costs you and I tons of money to support Underwriters' Laboratories without competition. There are reasons such as the following: Fans will cost us 35 to 50 percent more this summer, because Underwriters' Laboratories has decided to "Make work" and get more money for themselves because of a new set of standards they have set on the manufacturers. They have engineers from various companies attend their meetings, which are controlled by Underwriters' Laboratories and it appears that the people attending these meetings have been brain-washed by Underwriters' Laboratories.

Underwriters' Laboratories needs competition to keep it on its toes. The keystone of our society is built on competition which is the crucible that separates the weak from the strong, and the good from the bad so that you and I get the benefits of free competition in the marketplace.

Competition tempers the greedy and rewards those that give quality at reasonable prices. Because of no competition, Underwriters' Laboratories has become a vast privately owned, profit making company, and with a bureaucratic image, without outside control by you and I. It has become despotic and arrogant in its dealings with its customers. The public relations are bad and none of us that come in contact with Underwriters' Laboratories wish it success.

If Underwriters' Laboratories did its job correctly with competition, there would be no need for a Ralph Nader, or the many consumer protection agencies who are not exactly altruistic and our costs of goods are constantly rising.

We have always contended that competition must have free rein in the marketplace. Underwriters' Laboratories needs competition to keep it on its toes.

At this time, I wish to refer you to copy of August 26, 1974, letter sent to Mr. W. A. Farquhar, the Vice President of Underwriters' Laboratories.

AUGUST 26, 1974.

Mr. W. A. FARQUHAR,
Underwriters Laboratories, Inc.,
Melville, Long Island, N.Y.

DEAR MR. FARQUHAR: I have been requested by Mr. Grandinetti to reply to your recent letter, to convey his sentiments, that Underwriters' Laboratories needs competition to keep on its toes. The keystone of our society is built on competition, and you should strive to attain this position to do a better and more realistic safety job for the American people. Tell the American people in the ads you run, that you are not a government agency, but just another company working real hard to do a good job to make an honest buck. We find, that three out of five people, think you are a government agency. We do not think you want this erroneous belief to exist. Or do you?

We sincerely want and need good realistic safety measures to protect our people from electrical hazards. We cannot see that you can do the job without competition to keep you on your toes. Because of the lack of competition, you have become a vast bureaucratic, privately owned, profit making company, with-

out any outside control by the American public. You have indeed, become despotic and arrogant in your dealings with your customers. Your public relations are very bad, and we find none of your customers wish you well. In fact, the general statements when referring to Underwriters' Laboratories is generally unfavorable. Here are a few examples that make us sit up and take notice.

Where does Underwriters' Laboratories get the clout as a private company, to reach into a taxpayer owned facility such as Los Angeles Testing Laboratory, and chastise the officials therein for taking sides with us against Underwriters' Laboratories? The issue was simple. Underwriters' Laboratories was wrong and we were right. Los Angeles Laboratory took sides with us and said you were wrong. For this, you slapped them down. Where do you get this power? Here is another example.

Our lawyer attended one of your meetings in Chicago. When he identified himself as a lawyer from our company, it threw the meeting into a turmoil. Confusion reigned—The Underwriters' Laboratories chairman made this statement. "It is a very unusual situation to have an attorney in our meeting, and we may have to change the format of our meeting." One of the industry members stood up and said "I hope and trust that no one compromises any other member while a lawyer is present." What is this? What indeed goes on in these meetings to elicit such remarks? Here is another example which illustrates the reasons for our questions, and our public letters to you. Their examples illustrate why Mr. Grandinetti turned down your offer to Grandinetti Products to send our Engineer to attend your meetings. Mr. Grandinetti is of the opinion, that these meetings should be attended, along with the Engineer, by a company attorney or the Sales Manager, or someone from top management.

This is the third example mentioned above:

I attended a recent Underwriters' Laboratories meeting in New York and asked you if you would permit the use of my recorder to make a record of the meeting. You refused to allow me to do so. Why? What do you wish to hide from the American people?

At this time, we wish to withhold further comments, in order to give you a chance to defend your positions. There are many more questions which we are sure you will want to have us ask of you at a later date.

Respectfully,

WALTER C. REIN.

AN OPEN LETTER TO UNDERWRITERS LABORATORIES AND MERCHANTISERS OF HAND HELD HAIR DRYERS

For the past five years the makers of hair care products have enjoyed a bonanza of consumer demands. We who make professional hair dryers have experienced countless salon customers seeking purchase of professional equipment. It has become exciting, profitable and extremely competitive satisfying the growing home user demand for pistol type hand held hair dryers. So much so that we now face a danger of overkill through the high wattage gimmick. This is why I address my letter to the Underwriters Laboratories as well as to mass merchandisers.

First I call upon Underwriters Laboratories to take responsibility for regulation of not only temperature standards, but to define the limits of efficiency related to excessive wattage.

Old methods of temperature testing in the escalating hair dryer product market are not sufficient. The Underwriters Laboratories certification of hand held dryers producing 1000 watts or more of power could become an abusive consumer merchandising gimmick. As a matter of fact to meet the present Underwriters Laboratory requirement of 85 degrees centigrade of temperature a 1000 watt dryer must be calculated to be inefficient by design. This is achieved by limiting the wattage performance in order to pass certification by using low efficiency wiring or poor quality energy consuming motors to dissipate excess wattage in order to lower the temperature expended.

We know that a balanced machine delivering 30 miles per hour of air velocity need not have more than 700 watts for efficient heat performance to meet the same heat standard set by Underwriters Laboratories. The secret for high performance in this type of machine is in the relative air movement developed to pass through the heat element at a measured speed. We define this as M.A.M., measured air movement. It is obviously ridiculous to use energy consuming devices to dissipate 300 extra watts while achieving the same temperature to

meet Underwriters Laboratories certification. The country now is facing a devastating power shortage. We believe the Underwriters Laboratories can serve the nation and consumer well by taking the responsibility for regulating the unacceptable misuse of energy. Again those who would abuse the U.L. label to merchandise excessive wattage dryers for a hyped-up selling pitch are asking for trouble from consumer protection agencies when the truth is exposed.

I suggest a meeting be held with proper representatives from all interested manufacturers with Underwriters Laboratories principals to discuss this issue.

EDWARD M. GRANDINETTI,
President, Grandinetti Products.

OPEN LETTER #2 TO UNDERWRITERS LABORATORIES AND MERCHANDISERS OF PERSONAL CARE AND COSMETIC PRODUCTS

LOS ANGELES, CALIF., December 14, 1973.

We take issue with numerous activities or "lack of" on the part of Underwriters Laboratories.

This past summer Underwriters Laboratories called a meeting August 29, 1973 at Chicago's O'Hare International airport. We understand the purpose of the meeting was to create an advisory group to make certain modifications of electrical standards pertaining to hand held hair dryers. Resulting from the meeting the Underwriters Laboratories issued a bulletin #859 on October 11, 1973. The bulletin documented the various recommendations made during that meeting.

The bulletin when received at this office sought comments on the contents by interested parties. The comments were to be addressed to a Mr. Horton of Underwriters Laboratories, Santa Clara, Calif. A time limit of six weeks was set for response.

Barely fifteen days passed and an addendum was issued to the first bulletin. The latter bulletin carried revised standards that will cost manufacturers millions of excess dollars. The addendum was made before a comment or comprehensive consideration to the first bulletin could be made.

It is our sincere feeling that our company and other manufacturers of hand held pistol type hair dryers who produce and sell more of this product than those present at the Chicago meeting were not properly represented. We believe a healthy advisory group can only come from those whose day to day performance producing certain products gives benefit of their expertise. This did not happen.

Having received the original bulletin on Oct. 16, 1973 I wrote my expressions of the high handed method Underwriters Laboratories used to create this limited qualified panel. The letter was sent to Mr. G. V. Horton on November 1, 1973. I stated with all sincerity that frankly I felt that the conference as structured was without proper representation and should be "scrubbed." These expressions were sent by registered mail and to this date have not received an answer.

If the Underwriters Laboratories are sincerely concerned with the interest of the consuming public they should, indeed must, include all the intelligence from those manufacturers in any product categories whose proven expertise and ability to perform be permitted to enter conferences whose results have a significant effect on the public's protection.

The unbalanced attempt to develop standards for public protection by Underwriters' Laboratories has led to abuse in this industry. Some manufacturers are promoting high heat dryers over 200 degrees. It is well known by legitimate hair care authorities that excessive heat of this magnitude could completely destroy one's hair.

There is growing outrage appearing in our trade publications at the continuing abuse of energy and the merchandising of wattage for sales purposes.

R. G. Ehrlich, *Executive Vice President*, Brother International Corporation, says, "Isn't it ridiculous for some manufacturers to invent useless gimmicks and spend a fortune to propagandize the public."

The above quote has appeared in several trade publications in which we advertise. From "Moneysworth" a consumer evaluator guide paper wrote of one hand held hair dryer: "A killer of a dryer; best used for boiling water."

George A. Glenn, Editor in Chief of "Housewares" magazine, poses the following:

"As industry weighs the trade-offs in wattage and other design features, the concerned company stands to gain by seeking consumer views before making decisions, instead of simply deploring consumer emphasis on wattage or suffering the competitive disadvantages of taking a responsible stand."

To my mind there is a disturbing reaction developing in the minds of people aware of and responsible to the consumer interests. Next we will have the power of a Ralph Nader and his group bringing forth to the public the dangers and abuses that are going unchecked by any responsible body. U.L. is ignoring this reality.

If the Underwriters Laboratories are not able to take responsibility of regulation of the obvious abuses, perhaps we as an industry should create such an agency.

I call upon those responsible manufacturers in our industry to come together and face this not for profit organization, whom we have supported with millions of dollars, with the reality of their folly. I shall be happy to serve as a rallying point for our group to meet the challenge. Write, wire or call me and I will activate our free enterprise group with strength and vigor.

EDWARD M. GRANDINETTI.



APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

650 PALM AVENUE • POST OFFICE BOX 459 • HIALEAH, FLORIDA 33011 • (305) 835-4515
CHEMISTS • ENGINEERS • INSPECTORS



July 24, 1975

Mr. Robert J. Schroeder
Federal Trade Commission
5th and Penn N.W.
Room 288
Washington D.C. 20580

Dear Mr. Schroeder:

Pursuant to our telecon of Monday, July 21st, I will attempt to provide you with the information you requested in the three areas which were discussed.

1. Jurisdictions which refuse to recognize the A.R.L. label.

Appendix one - exhibit one shows the results of a survey made by George Hanning of the Air Conditioning, Heating and Refrigeration News. In Detroit only AGA and UL are generally accepted for Product Certification. Chicago accepts only UL and then with qualifications. Heave accepted in New York City only for plastics, and are not accepted in Denver.

Exhibit two appears to be a contradiction of what Hanning was told by his contact in New York.

Exhibit three focuses on the crux of the problem the decision is generally left to the discretion of the individual inspector.

We would like to point out that of the many contacts we have had with various municipalities, Building Inspectors, etc. that few if any have ever visited U.L. Labs or even are sure where U.L. Labs are located. Many are not knowledgeable of what the standards are that the products must conform to, but if the U.L. label is affixed they automatically accept it. In none of the information we have compiled over the period of thirteen years in which we have been engaged in this activity has U.L. been challenged to our knowledge. This has become so engrained that even within the government D.S.P.A. automatically specified U.L. and Factory Mutual to the exclusion of all others. This even if it was done inadvertently subjects us to discrimination and restraint of trade even at the Federal level.

Exhibit four is a letter which was sent to the Attorney General of each state and the territories. To date we have received thirty two responses. They generally fall into four general categories.

APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

Mr. Robert J. Schroeder
 July 24, 1975
 Page Two

1. Those that presently have no provision for accepting Independent Testing Laboratories.

Under this category are the Virgin Islands, Alaska, Conn., Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, North Carolina, South Carolina, Virginia, Washington and Illinois.

2. Those that mis-interpreted the intent, referred it to another agency or refused to commit themselves.

Under this category are Puerto Rico, Alabama, California, Conn., Kansas, Massachusetts, Nevada, Oklahoma, Wisconsin, North Dakota, Hawaii, Georgia and Minnesota.

3. Those that require U.L. Approval.

Montana - certain agencies
 Missouri - unofficial recognition

4. Do their own certification.

Pennsylvania

It is obvious from this that the majority of the states have no legislation that would prohibit the acceptance of test results from any competent Independent Testing Laboratory, and yet this is being flagrantly violated by local governments in many states, and frequently by cities having the greatest marketing potential. If your label is not recognized in New York City, Chicago and Los Angeles no national marketing firm is going to use your Product Certification Program. We will document an example later on in this letter.

A prime example of this sort of thing is the situation which developed in Boca Raton. The city stipulated that only the U.L. label would be recognized. Our client brought suit, and A.R.L. was involved as a second party to the suit. It was supposed to be a clear case of restraint of trade. However, how many clients are going to incur the time and expense involved in litigation every time an inspector refuses to recognize the label? We have lost a great many clients, who deserted us with great reluctance, but the hassle proved too much. It was purely a matter of "if you can't lick them join them." An excellent source of clients A.R.L. has lost is a comparison of our products directory listing. Instead of growing as would be expected it is actually shrinking in size, because of clients deserting A.R.L. due to the lack of acceptance of the A.R.L. label as opposed to the virtually unopposed acceptance of the U.L. label.

APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

Mr. Robert J. Schroeder
July 24, 1975
Page Three

On a more constructive note Exhibit 5 illustrates that a need for laboratory certification exists, and at least one state apparently has recognized that need.

2. What the economic impact has been on A.R.L., because of the virtual monopoly enjoyed by U.L. and to a lesser extent Factory Mutual.

One of the more promising prospective clients we lost because of U.L. domination was the Air Conditioning Division of Westinghouse Electric Corporation located in Norman, Oklahoma. Mr. Erik Jensen, Engineering Mgr., became convinced we had the capabilities to certify their units and requested their purchasing department to negotiate a contract with A.R.L. I believe the man in purchasing was a Mr. Ben Getties. However, when marketing made a survey, they felt they would be at a competitive disadvantage without the U.L. label. As a result, negotiations were terminated. This can be verified by calling (405) 364-4040.

Appendix two - exhibit one gives a list of clients we lost just in recent months in the air conditioning sector alone. Exhibits 2, 3 and 4 are copies of letters typical of those we receive on an almost daily basis.

The amount of money A.R.L. has lost over the years, because of this restraint of trade boggles the mind. We are proud of our facilities, aerial photo enclosed, and have the capabilities to handle a much greater volume of production. This would provide employment for engineers who if working at all are performing menial tasks. I'm sure you are aware that South Florida ranks among the ten areas experiencing the highest rate of unemployment. What a tragic waste of manpower.

3. Whether U.L. has a different fee schedule when confronted by competition?

We have no hard evidence to support such a contention.

As I related to you over the phone, we did lose a substantial job from a client who had all but promised us the job based on a long standing association. U.L. offered the client a ridiculously low fee if allowed to fire-test three fire doors simultaneously. However, whether they did this to gain a price advantage, or because of their backlog of work we are unable to say. We do contend, however, that it constitutes bad engineering practice.

We could provide much additional information. However, your time is valuable, and the files are so voluminous that it would take

APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

Mr. Robert J. Schroeder
July 24, 1975
Page Four

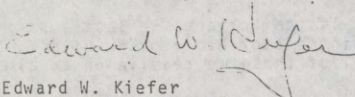
several days to collect all the documents.

I am enclosing a copy of the letter to Patricia Kelsey the regional editor for Air Conditioning, Heating and Refrigeration News which summarizes the predicament that A.R.L. and other Independent Testing Laboratories are faced with.

If you do require additional information please let us know, and we will be happy to comply. Should your travels bring you to Miami, we would be happy to give you a tour of our facilities, meet our management people and engineers for first hand discussions and conceivably some of our clients would be willing to discuss the situation with you as it effects them.

Sincerely yours,

APPLIED RESEARCH LABORATORIES
OF FLORIDA, INC.



Edward W. Kiefer
National Sales Manager

EWK:lb
Encl.

CHEMICAL • BIOLOGICAL • PHYSICAL • X-RAY • RESEARCH • DEVELOPMENT • METALLURGY



APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

650 PALM AVENUE • POST OFFICE BOX 489 • HIALEAH, FLORIDA 33011 • (305) 885-4515

CHEMISTS • ENGINEERS • INSPECTORS



APPENDIX 1

AIR CONDITIONING
HEATING & REFRIGERATION

THE WEEKLY NEWSPAPER OF THE INDUSTRY

NEWS

APPENDIX 1

Exhibit 1

April 30, 1975

✓ Mr. Ed Kiefer
Applied Research Laboratories
of Florida, Inc.
650 Palm Avenue
Hialeah, Florida 33011

Dear Mr. Kiefer:

George Hanning, associate editor with the News, with whom you have corresponded and spoken with, has asked me to follow up with you on the workings and prospects for ARL.

I have in-hand material forwarded to Mr. Hanning including your literature, directory, etc., plus notes taken by Mr. Hanning.

From Mr. Hanning's initial leg-work, I am told that several contradictions between ARL's claims for national acceptance and actual certification in major jurisdictions, such as New York City, Chicago, Detroit, and Denver are not accepted.

For example, we have been told by respective safety engineering departments in those jurisdictions that in Detroit, only AGA, UL, sometime Canadian Standards, and sometimes manufacturing testing are accepted for heating, ventilating, and air conditioning equipment. In Chicago, we are told that only UL is accepted and even then it must pass the Chicago Board. In Denver, they say ARL is not accepted; in NYC, ARL is accepted only for plastics.

Additionally, some jurisdictions claim that application for acceptance has not been made.

To clarify these apparent contradictions, I would like to ask of you your explanation, and, what ARL is doing to gain acceptance and national recognition.

I am personally aware of ARL's label here in the state of Florida since I recently did a story on Energy Conservation Unlimited of Longwood, Fla., when they recently introduced their ECU heat exchanger, which carried the ARL label of acceptance.

71-049 377

5930

Business News Publishing Company

P. O. Box 6000, Birmingham, Michigan 48012 • Phone 313-642-3660 • Telex 23-0295

APPENDIX 1

July 18, 1975

Exhibit 2

David C. Norton, P.E.
Vice President/Engineering
Applied Research Laboratories of Florida, Inc.
Post Office Box 489
Hialeah, Florida 33011

Dear Mr. Norton:

Your letter of May 21, 1975, addressed to New York State Attorney General, Louis J. Lefkowitz, has been forwarded to me.

To the best of my knowledge, all State agencies that have standards requiring approved labels will accept products that have been tested by a laboratory that has submitted the results of their tests to the agency enforcing the standards.

Insofar as this agency is concerned, we will accept and approve any products which are required to be approved if a testing laboratory submits complete data in connection with the product tested. Our jurisdiction, however, is extremely limited and is solely in the area of boilers, elevators and in limited areas of fire protection in places of public assembly.

I suggest, however, that you also communicate with the Building Codes Commission of the Division of Housing and Community Renewal, Two World Trade Center, New York, New York, 10047, in order to obtain information from that agency concerning labelled products.

If I can be of any further service to you, please communicate with me.

Very truly yours,

Carl J. Mattei, Director
Occupational Safety and Health

CJM:tp

TRUE COPY

APPENDIX 1
Exhibit 3



DEPARTMENT OF INSURANCE
State of North Carolina

P. O. BOX 26287

R. F. 1951 N. C. 27411

JOHN RANDOLPH INGRAM
COMMISSIONER OF INSURANCE

(919) 829-7343

June 30, 1975

Mr. David C. Norton
Applied Research Laboratories of Florida
Post Office Box 489
Hialeah, Florida 33011

Dear Mr. Norton:

Your letter addressed to the Attorney General requesting the agency and key personnel in my state responsible for writing codes/statutes as they apply to laboratory acceptance in accordance with nationally recognized standards has been referred to this office for reply.

As stated in the Attorney General's reply to you, we are not aware of any state agency or person having authority and responsibility for writing codes or statutes as they apply to laboratory acceptance for various types of products which would be mandatorily accepted statewide and which would require monitoring by the state in order to assure their statewide acceptability. However, North Carolina does have a statewide building code and in the administration of the statewide building code, this office and local building inspectors and design professions do accept or reject individual laboratory reports and products labeled by them when they are nationally recognized and have a record of acceptability nationwide.

The only statute which provides for mandatory acceptance of labeled products throughout North Carolina is in the instance of mobile homes and manufactured dwellings. Under separate cover, we are mailing you a copy of the 1972 edition of the North Carolina Regulations for Mobile Homes which contains on pages 30-35 the procedures for approval of laboratories and/or agencies to label mobile homes and manufactured dwellings and pages 36-52 contain methods and procedures required of approved agencies to perform this work. Please also note the additional Rule 10 and 11 which would also apply.

If any additional information is needed, please advise.

Yours very truly,

Kern E. Church, P. E.
Deputy Commissioner of Insurance
Engineering and Building Codes Division



APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

650 PALM AVENUE • POST OFFICE BOX 489 • HIALEAH, FLORIDA 33011 • (305) 835-4515
CHEMISTS • ENGINEERS • INSPECTORS



APPENDIX 1

Exhibit 4

Dear Sir:

By means of this letter, we would like to introduce ourselves. Applied Research Laboratories of Florida, Inc. was established in 1949 and incorporated under the laws of the State of Florida in 1956. We are an independent for-profit commercial laboratory providing services to industry and governmental agencies throughout the United States.

Since 1962, due to requests from clients and governmental agencies, we have been providing a product certification program parallel to that of Underwriters' Laboratories.

Due to the growth of this program and scope of clients throughout the United States, we are writing your office to request the following information:

The agency and key personnel in your state responsible for writing codes/statutes as they apply to laboratory acceptance, and therein the acceptance of laboratory labelled products that have been tested in accordance with nationally recognized standards.

We desire this information so that we may communicate with them in an endeavor to have our laboratory's test data, and subsequently our clients' products bearing our label, accepted for use/installation in your state.

We have the same interest as that of your inspectors' agencies in protecting the consumer and assuring them of the safety of the product involved. We realize that there was a time in our nation when the only available organization performing such services was Underwriters' Laboratories, however, today others like ourselves are providing similar services.

If your office can provide us with a ruling on your state's recognition of our listing, labeling and reinspection services, we would be most appreciative. We will be more than pleased to provide you with whatever information you may require and we extend our invitation to visit our facilities at the Florida Industrial Research Park in Florida City, Florida.

APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

The management of Applied Research Laboratories of Florida, Inc. is confident that the specification of a sole or limited number of recognized testing laboratories in state codes was never meant to result in restraint of trade. We are sure the intent was to require safety testing in compliance with nationally recognized performance standards conducted by independent testing laboratories with no vested interests in the product under test. Applied Research Laboratories of Florida, Inc. is such a laboratory.

Please respond at your earliest convenience as this matter is of the utmost importance to our clients and ourselves as the largest laboratory in the State of Florida.

Cordially,

APPLIED RESEARCH LABORATORIES
OF FLORIDA, INC.

David C. Norton, P.E.
Vice President/Engineering
Director
Product Certification Dept.

DCN:ct

APPENDIX 1

Exhibit 5

ADDISON PRODUCTS COMPANY

ADDISON, MICHIGAN 49220
PHONE (517) 547-6131

April 28, 1975

James G. Worth, P. E., FAIC
President, Applied Research Laboratories
of Florida, Incorporated
P. O. Drawer I
Homestead, Florida 33030

Dear Mr. Worth:

The State of Michigan under Public Act 230, 1972 has created a Construction Code Commission to write a new Construction Code for the State. The writer has accepted an appointment to The Mechanical Division to represent the manufacturers of Michigan. Besides serving on the 5 man Article #3 Committee, Heating, Cooling and Ventilating, I am also Chairman of the 3 man Article #2 Committee, Definitions.

As a starting point we have adopted The BOGA Basic Mechanical Code /1975 and will proceed to make additions, deletions, etc. to it.

As in any code of this nature repeated reference is made to a "nationally recognized testing or inspection agency", or words to this effect. In Appendix A, Accredited Authoritative Agencies, pages 254 and 255 of BOGA '75 (see attached) these testing and inspection agencies are listed.

Through Jim Brownell, Vice President and General Manager, and Dave Ritchie, Chief Engineer of our subsidiary WeatherKing, Incorporated of Orlando, we have heard of the excellent work being done by your fine and growing organization. We understand that you have now gained recognition in the states of Georgia, North, and South Carolina.

My question and purpose for writing Mr. Worth is to ascertain whether or not you and your facility are in a position to entertain the idea of working toward gaining acceptance as an Accredited Testing Laboratory in the state of Michigan. If you are desirous of making this move at this time, it will be my pleasure to work with you.

J. G. Worth
Applied Research Lab.
of Fla., Inc.

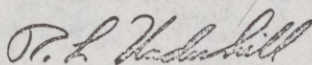
-2-

4/28/75

We are certain you fully understand the need for an additional approved testing agency in this country, and are looking forward to doing what we can to help you.

Sincerely,

ADDISON PRODUCTS COMPANY



R. L. Underhill, Director
Advanced Engineering & Research

RLU:tjb
Attachment
cc: J. F. Brownell

CHEMICAL • BIOLOGICAL • PHYSICAL • X-RAY • RESEARCH • DEVELOPMENT • METALLURGY



APPLIED RESEARCH LABORATORIES OF FLORIDA, INC.

650 PALM AVENUE • POST OFFICE BOX 489 • HIALEAH, FLORIDA 33011 • (305) 885-4515

CHEMISTS • ENGINEERS • INSPECTORS



APPENDIX 2

APPLIED RESEARCH LABORATORIES OF FLORIDA, INC

APPENDIX 2

Exhibit 1

Coleman	Wichita, Kansas
Sure-Heat	LaPorte, Texas
Magna-Flo	Houston, Texas
Vaughn Corporation	Salisbury, Mass.
International Heating & Air Cond.	Utica, New York
Luxaire	Elyria, Ohio
Addison	Addison, Michigan
McCord Corporation	Detroit, Michigan
Warren Manufacturing	Chattanooga, Tenn.
Monogram Industries	Illinois
Silencer Air Conditioning	Chamblee, Georgia
Lear-Siegler	Holland, Michigan

APPENDIX 2

Exhibit 2

April 30, 1975

Mr. David C. Norton, P.E.
Vice President/Engineering
Applied Research Laboratories of Florida, Inc.
650 Palm Avenue, P.O. Box 489
Hialeah, Florida 33011

Dear Mr. Norton:

Thank you for your letter of April 1, 1975. We are interested in obtaining certification and listing of our Oil Burner Systems for domestic heating applications. These Burner Systems are in rates of up to five gallons per hour. I have enclosed several data sheets on these Burner Systems for your consideration.

We have already obtained the required standards from Underwriters' Laboratories and we feel our Burner Systems now meet their standards. Our question now is what would be the advantage of dealing through you as opposed to Underwriters' Laboratories directly in obtaining certification of our Burner Systems? According to my research, Underwriters' certification is a prerequisite for selling in this country.

I have my Chief Engineer arriving from Italy on Saturday, May 10. I would appreciate an answer prior to that date so that if necessary a visit to see you could be scheduled during his stay. Please feel free to call me directly if necessary.

Thank you very much,

Alfred C. Olivetti

ACO/ce

TRUE COPY

APPENDIX 2

Exhibit 3

March 3rd, 1975

Applied Research Laboratories
of Florida, Inc.
650 Palm Avenue
Hialeah, Florida 33011

Gentlemen:

I am in receipt of some sales literature forwarded to us. I am especially interested in the Product Certification Program.

We manufacture Dumbwaiters and at the present time U/L Dumbwaiter doors. We have provided these doors for over twenty (20) years, without a problem, but we find that U/L first of all is becoming very expensive especially when changes to the construction are discussed and secondly they are unable to use any judgment or common sense in their decisions.

I would like to obtain more information on this program including the acceptance of your certification verses the acceptance of the U/L classification.

If you have a representative from your organization in this area I would be more than happy to sit down and discuss this with him, but as I am not always available I would appreciate a call prior to any visits.

Thank you for your cooperation and anticipated prompt reply.

Very truly yours,

Walter Hults
Chief Manufacturing Engineer

WH:ec

TRUE COPY

APPENDIX 2

Exhibit 4

BUILDING INSPECTION

R. W. Friess, Superintendent 266-4851

N. Bollenbach, Ass't. Superintendent 266-4559

Room 109



city-county building, madison, wisconsin 53709

CITY OF MADISON

December 29, 1971

Mr. James G. Worth, P.E.
 President
 Applied Research Laboratories
 650 Palm Avenue
 Hialeah, Florida 33013

Dear Sir:

This department was pleased to receive your listed Products Directory that was recently sent to our City.

Our new electrical code has a provision requiring that electrical appliances, apparatus, or materials bear the seal, stamp or identification of a testing firm or laboratory which tests to public standards.

This new ordinance is much broader than our previous one which limited such items to, basically, one recognized testing firm. We believe that we can list your laboratory as being a recognized testing firm under our new ordinance and will be very pleased to receive such mailings and further directories as are sent out.

Very truly yours,

R. W. Friess, Supt.
 Building Inspector

Vern H. Erickson, Supt.
 Mechanical Inspections

VHB:ner

Enclosure

COUNTY OF CUYAHOGA)
) SS.
 STATE OF OHIO)

R. V. Myer, being duly sworn, deposes and says:

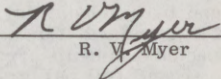
1. I was the Assistant Director of the American Gas Association ("A.G.A.") Laboratories between 1955 and April 30, 1974, when I retired. I am making this affidavit to explain my role in A.G.A.'s dealing with the Vent-O-Matic device and to respond to certain testimony and allegations appearing in the prepared statement of Charles E. Woolfolk, President, Save-Fuel Corporation, before the Subcommittee on Anti-trust and Monopoly, Committee on the Judiciary, United States Senate, March 22, 1976.
2. As Assistant Director of the Laboratories, I was generally responsible for assisting the Director of the Laboratories, F. E. Hodgdon, in supervising the testing and certification activities of the laboratory.
3. My initial familiarity with Save-Fuel Corporation began in 1966 when United Testing Company, Inc. contacted me, on behalf of Save-Fuel Corporation, to determine which requirements might cover the Vent-O-Matic device. On August 19, 1966, I responded that to the best of my knowledge, no standards existed for such a damper device, but that as a minimum any flue damper should be operated from the thermostat system (rather than be solely heat-activated) and that some mechanism such as a mercury switch should be employed to interrupt gas flow until the damper is open.
4. On May 23, 1967, Mr. C. G. Diehl, President, Save-Fuel Corporation visited with me and Mr. Hodgdon. By letter of June 6, 1967, I had confirmed our prior discussion and told Mr. Diehl that there were no existing national standards that would apply to the Vent-O-Matic, but that if the device was made a permanent part of the appliance it could at least be evaluated as a component of the appliance submitted. It was this initiative on the part of A.G.A. that led to this device being certified as part of three furnace models in 1968.
5. Thereafter, I, and other members of my staff, had numerous meetings with Mr. Diehl and Mr. Woolfolk at the Laboratories to discuss the various issues arising from their marketing efforts. Contrary to Mr. Woolfolk's allegations in his testimony, it was made clear throughout that A.G.A. had only certified a series of furnaces as complying with the furnace standard when the Vent-O-Matic device was installed as an integral part.
6. Regarding the allegation on page 8 of the statement that I "requested that (I) receive one of the units for (my) home", I do not recall ever having made such a request. From time to time, I have agreed with manufacturers to install new or experimental equipment in my home as a sort of informal field test of such equipment, and if Mr. Woolfolk or Mr. Diehl had requested that I do this, I might have indicated that I would consider it. However, no request was ever initiated by me, and no action was ever taken on their part to implement such an arrangement.

- 2 -

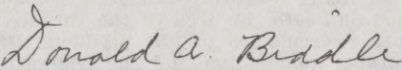
7. There is absolutely no truth to the statement on page 8 that after A. G. A. certified the three furnaces and the release appeared, my "phone rang for about three months and that even (my) job was jeopardized". When Save-Fuel put out its incorrect press release and advertising, I did have numerous inquiries from utilities concerned about the safety of their consumers. In each case, I explained to the person making the inquiry exactly what A. G. A. had certified. To the best of my recollection, there was never any animosity directed at me from any person concerning my or A. G. A. 's handling of this matter.

At no time did I either directly or indirectly urge any person not to consider or utilize the Vent-O-Matic device. My only effort was to explain exactly what A. G. A. 's certification covered.

8. With respect to the statement on page 10, "When I visited with Chief Myer at the A. G. A. Lab, he told me that if we would bring in our device and have it tested on most furnaces, he felt sure that the lab would approve it", I do not believe I ever made such a statement. I believe that I informed Mr. Woolfolk that A. G. A. could never certify the Vent-O-Matic device as an independent device unless there was a standard for it, but that it could be certified as an integral part of other furnaces. I further indicated that since most models of furnaces have differing operating characteristics, that we could not certify any combination without testing such combination, but that this would not require us to repeat the basic testing of the equipment.


 R. V. Myer

SWORN to before me this 2nd
 day of April, 1976


 Notary Public

DONALD A. BIDDLE
 Notary Public For Cuyahoga County
 My Commission Expires April 16, 1977

ADDITIONAL STATEMENTS SUBMITTED FOR THE RECORD

AMERICAN GAS ASSOCIATION SUPPLEMENTAL STATEMENT

This supplemental statement is offered to respond to those allegations appearing in the testimony and statement of Charles E. Woolfolk, President, Save-Fuel Corporation, Memphis, Tennessee, before this subcommittee on March 22, 1976, in hearings concerning the voluntary standards-making process which were not rebutted in the testimony of the American Gas Association ("A.G.A."). It is requested that this Supplemental Statement be made part of the record in the proceeding.

In submitting both its original testimony and this supplemental statement, A.G.A. does not wish to belittle the importance of saving energy or the possibility of savings through the use of flue dampers. A.G.A. and its member companies are constantly trying to improve the safety, efficacy and efficiency, and reduce the cost, of gas service for America's natural gas consumers. Further, A.G.A. acknowledges that private standards efforts at many times may appear to move slowly—due in large part to the constraints imposed on private efforts by anti-trust laws and product liability responsibility—and it is trying to improve and speed up the private standards process. But, given the constraints enumerated, A.G.A. believes that, on the record of these hearings and the facts known to A.G.A., there is no basis for condemning either A.G.A. or the private standards system for the activities in connection with the Vent-O-Matic device and flue dampers generally.

As evidence of its concern, A.G.A. is presently trying to formulate a program which will permit it to examine devices for which there are no standards and prepare reports which may be of assistance to local regulatory officials in assessing for themselves the acceptability of such devices. This should help in giving new and innovative products further access to the market place. But it should be noted that the word "standard" means what it says—a description of an item normally found in commerce whose characteristics in use are known and upon which people using the product can agree. It is not a specification, nor a description of some newly conceived device whose merit has yet to be tested in the market place. Until a product becomes widely used and widely understood by a substantial number of interested people, it is inappropriate to speak of a "standard" for it.

The specific comments are as follows:

1. The second full paragraph on page 2 contains the erroneous comment that "each gas-fired furnace is equipped with a vent that allows toxic fumes, which develop when the furnace is firing to escape into the atmosphere". In point of fact, the products of combustion from an adequately vented furnace are water vapor and carbon dioxide, which are not toxic. However, spillage of combustion products out of the furnace draft hood and into the area of the furnace as a result of inadequate venting can cause recirculation of flue products through the combustion chamber causing improper combustion and the generation of toxic carbon monoxide. If the flue damper failed to open when the furnace is on, this spillage would occur, carbon monoxide would be generated and probably find its way into the living space with the likelihood of disaster to those in the residence involved.

2. The third paragraph of page 2, continued on the top of page 3, substantially exaggerates the likely energy savings resulting from the use of flue damper services, and totally ignores the cost of any program to achieve such savings.

Virtually the only testing for savings to be anticipated from Vent-O-Matic (other than the tests conducted by IGT described in A.G.A.'s main testimony) that have been conducted on this device have been those done at the behest of the manufacturer who is attempting to sell it. The detailed results of the testing have not been available for examination by A.G.A., and the persons who conducted the testing have not been subject to cross-examination. In this connection, it is the understanding of A.G.A. that Mr. Watts (formerly of the Memphis Gas, Light & Water Division) whose work is referred to on page 16 of Mr. Woolfolk's testimony, and who also testified himself, was hired by Mr. Woolfolk when he retired from MLG&W. Certainly, any such relationship should be investigated further before conclusions can be drawn about the objectivity of the studies which he performed.

Similarly, any statements by home owners as to the amount of savings that they have observed should be examined closely before any conclusions are

reached. It is well known that when a person becomes concerned about conservation he tends to do various things (such as insulating, cutting back on the opening and closing of doors, adding or replacing storm windows and weather stripping) which may have a far greater affect on energy savings than the device which precipitates the effort.

In considering savings, one must also look at the cost to the home owner of doing the work required to gain any benefit from a flue damper. As was recognized in the IGT study, if a home has both a gas furnace and a gas hot water heater, there may be no savings unless dampers are used on both flues since conditioned air will be drawn through any open flue. In a gas water heater the burner valve is usually activated by a very small direct electrical current from a thermocouple, which is in no way sufficient to operate a Vent-O-Matic device. Accordingly, if a retrofit program was undertaken, many gas water heaters would need to be fitted with new control systems and nearby electrical connections provided, all of which would be a considerable expense to the home owner and could introduce further potential safety problems.

It should be noted that the IGT study is supported by implication, rather than rebutted, by the German testimony adduced on March 23, 1976. All of the conclusions of Dr. John appear to assume that both appliances must be fitted with damper devices in order to realize any savings. If there then is a savings of 2-5% on the furnace, and 10-15% on the hot water heater, this would mean a total savings of no more than approximately 9% for the whole system, since the average furnace in the United States uses approximately four times as much gas as the average hot water heater.

Another point which should be emphasized from the German testimony is that these devices will only be effective in situations where the appliances are located in a heated space. If they are installed in an unheated basement or garage, the savings are substantially smaller or non-existent.

While, as stated earlier, A.G.A. does not wish to belittle any energy savings, certainly it can be concluded that the potential savings to be derived cannot be as great as claimed by the manufacturer, and will be purchased at a considerable cost to the consumer.

3. In the first sentence of the first full paragraph on page 3, Mr. Woolfolk states that in order to market the automatic damper successfully, he needed A.G.A.'s certification, since local building code authorities have written into their codes that only products certified by A.G.A. as meeting ANSI standards will be accepted for installation in their respective jurisdictions. This is not true, as Mr. Woolfolk admitted himself in his testimony (see TR. 584). Local codes generally contain, either explicitly or implicitly, a provision giving the local inspection authority discretion to accept both equipment for which no national standard exists and equipment which is not certified as complying with a standard. Mr. Woolfolk used this authority to obtain acceptance in numerous jurisdictions, including the cities of New York and Memphis, and the states of Massachusetts and Connecticut.

4. The thrust of the testimony on pages 6 and 7 is that A.G.A. discouraged the development of the bi-metallic damper for some unstated reasons not connected with safety.

In fact, following Save-Fuel's discussions with A.G.A. regarding the bi-metallic damper, A.G.A. pointed out that the proposed device might present substantial safety problems. A.G.A. therefore suggested that an electrically activated damper device be developed in its place. Thereafter, in 1968, three Southwest Furnace Company furnaces equipped with an electromatically operated flue damper device were certified.

While the concept of Save-Fuel's bi-metallic damper may have been similar to the present Diermayer damper, they are quite different in operation. The original Save-Fuel damper depended on a bi-metallic drive for mechanically closing and opening a pivoted damper; this is the same construction as the early German device that was responsible for at least thirteen fatalities.

5. In the first full paragraph, page 8, Mr. Woolfolk contends that the Diehl brothers (who originally brought the Vent-O-Matic device to the A.G.A. Laboratories) "finally succeeded in obtaining certificates of approval for Save-Fuel's damper . . .". The disclosure in the next paragraph compounds the error as Mr. Woolfolk states that "I released through our advertising agency to all trade journals the fact that Save-Fuel's automatic damper had been tested and certified by A.G.A."

The extension certificates issued to Save-Fuel corporation clearly indicated that a forced air furnace with the trade name "Vent-O-Matic" was the type of appliance certified. The back of the certificate, which Mr. Woolfolk did not include in his presentation, clearly sets forth the characteristics of a furnace as the equipment certified. Furthermore, Southwest rating plates on extension furnace models indicated "Manufactured for Save-Fuel Corp." and the A.G.A. listing symbol was not authorized for inclusion on the damper nameplate.

The second paragraph of page 9 continues that "their certificates state that the trade name of the device certified is Vent-O-Matic and the company is Save-Fuel Corporation". The use of these names was dictated by Southwest and Save-Fuel. Southwest requested A.G.A. to issue a dealer extension of the entire furnace pursuant to the Distributor's Listing Agreement. The Distributor's Listing Agreement was jointly signed by Save-Fuel and Southwest. The name of the manufacturer does not appear on such so-called dealer extension certificates.

While the manufacturer's statement, Exhibit 4 of Mr. Woolfolk's testimony, does not state that the Vent-O-Matic device was not certified as an accessory, the language of this statement was negotiated with Mr. Woolfolk, in an effort to make it as factual as possible without unduly impeding his efforts to sell his device. At no time was there any question on the part of Mr. Woolfolk as to what was certified.

Following publication of the Ward Archer and Associates press release, numerous resulting inquiries received by A.G.A. caused A.G.A. to request cessation of the misrepresentation and corrective action. Mr. Diehl agreed on behalf of Save-Fuel to correct the deceptive advertising practices in a visit to the A.G.A. Laboratories.

6. Various comments concerning an "Ira (Chief) V. Meyers" appear on pages 8 and 10 of Mr. Woolfolk's Statement. It is believed Mr. Woolfolk was referring to R. V. Myer, former Assistant Director of the Laboratories. Mr. Myer's affidavit with respect to these matters has been submitted for the record of these proceedings.

7. In the second paragraph on page 10, Mr. Woolfolk contends he cannot understand why if the device was certified for one brand of furnace it was not certified for all brands.

The American National Standards applied in the A.G.A. program are "performance" standards, so the various models of gas appliances and accessories certified under them can and do differ substantially in construction and performance characteristics. The applicability of this device can vary substantially from model to model, even among various models produced by the same manufacturer, and certainly among those manufactured by different manufacturers. R. V. Myer and other at A.G.A. told Mr. Woolfolk that since most models of furnaces have differing characteristics, each combination had to be examined, although there would be no need to repeat the basic testing of the Vent-O-Matic equipment. There is no inducement to A.G.A. to generate unnecessary testing, since its charges are intended only to recover the costs of operating the program.

8. On page 12, Mr. Woolfolk creates the impression that the rebalancing of the Z21 committee was somehow improper. The draft standard was submitted to the Z21 Committee by letter ballot on December 24, 1973. Under ANSI rules, any negative vote on a letter ballot must be accompanied by a substantial reason, and, if there are negative votes, the persons voting affirmatively must be rebalanced so they will have an opportunity to consider the reasons for the negative votes. It is believed by ANSI that this offers at least some substitute for the interplay of discussion at a meeting. This was the reason for circulating the negative ballots.

9. Save-Fuel cannot prove (contrary to the last full paragraph of page 12) that it is impossible to install the device improperly.

For instance, the device could be installed in a vent connector at a point after the junction of two vent connectors, one serving a furnace whose control system was interconnected with a vent damper service and the other serving a water heater (or other appliance) not interconnected with a damper device. In such a case, if the water heater operated at a time when the furnace was not operating, the flue products emitted from the water heater would be discharged into the space in which the water heater was located.

10. On page 13 of his testimony, Mr. Woolfolk states that "the only thing that I can surmise from this action (of the Z21 Executive Committee recommending the inclusion of the draft standard in furnace and boiler standards) is that A.G.A. is saying that when they certified our device as original equipment, they certified an unsafe device".

11. The above quotation of Mr. Woolfolk reflects the fact that the Task Force draft standard for flue dampers had safety requirements not used by A.G.A. in 1968, including a provision that in the event of power failure the damper must assume the open position. This provision was intended to cover the situation where a furnace had a "manual override", permitting it to be lit manually when a power failure prevented operation of the electrically-activated thermostat. The Vent-O-Matic examined as a part of the Southwest furnaces assumed the closed position during power failure; however, these furnaces did not embody a "manual override feature".

When A.G.A. tested the Vent-O-Matic in 1968, A.G.A. developed tests under the existing furnace standard which requires that all components of a furnace must be safe. As part of the testing procedure, the Vent-O-Matic draft control was cycled from the open to the closed position 100,000 times. Certification of the furnace was not granted until the manufacturer corrected loud damper noises on closing, inaccessible screws to hold the cover down, difficulty in servicing, an opening around the activating shaft which would allow escape of flue gases and prevent condensation on the damper (which could result in a damper frozen in a closed position).

12. The suggestion that A.G.A. and large furnace manufacturers are working on their own damper to exclude Save-Fuel is ridiculous speculation. A.G.A. is not developing such a device and knows of no furnace manufacturer developing a flue damper device of its own. There is another manufacturer (Flair Manufacturing Co.) which has developed a vent damper that is being incorporated into furnaces and boilers. Furnaces and boilers incorporating this device as an integral part of units are being tested at the A.G.A. Laboratories.

13. Contrary to the assertion made at the top of page 14 that Save-Fuel is presently "faced with opposition from furnace manufacturers" because there is a gas shortage, A.G.A. believes that furnace manufacturers are as anxious to find ways and means of conserving natural gas as the gas utilities are. It is precisely because there is a recognized natural gas shortage and a finite supply of natural gas that furnace manufacturers would be motivated to encourage technology for conserving gas. The more gas conserved, the more is available for use in replacement or new markets, and the longer will a market for furnaces exist. Utilities are likewise interested in conserving available supplies of natural gas in order to be able to continue to supply gas to all classes of service. Energy-saving devices would not reduce the amount of gas sold, but would permit full and maximum use of available supplies. Accordingly, utility companies and manufacturers have no reason to restrict the marketing of fuel saving devices.

The comments submitted by utility, manufacturers, and public representatives on the Z21 Committee, who voted to reject the proposed flue damper standard, reflected their concern for the safety of consumers. In particular, those representatives were concerned with the possibilities of damper failure in a closed position, increased flue gas spillage into living area, and corrosion problems which could result from improper field installation.

14. The comment is made in the first paragraph of page 15 that "I have heard that A.G.A. had a hand in precipitating this action" (withdrawal in July, 1971 of CGA approval of the flue damper).

A.G.A. did not become aware that the CGA had withdrawn its approval of the Vent-O-Matic until the Jack Anderson article appeared in the press on October 20, 1972. Upon inquiry, on October 20, 1972, CGA authorized A.G.A. to make the following statement on behalf of CGA:

"The sentence with respect to the Vent-O-Matic device, 'It has been approved by the Canadian Gas Association, which tested the device and found it safe,' in the Jack Anderson syndicated column of October 20, 1972, is erroneous and misleading. The device was tested at the Canadian Gas Association Laboratories in 1970. Since CGA has no standard for this type of device, a special test reported dated October, 1970, was issued, indicating that the device appeared to function satisfactorily. The report was accepted by letter ballot by the chief gas inspectors of the Canadian provinces; however, at a subsequent meeting of the group held on May 31, 1971, it was concluded that it was unwise to permit installation of this device or a similar device due to the risks of blocking the vent, creating a potential hazard. There is no current approval in Canada for the Vent-O-Matic device and the manufacturer was so advised at the time.

"It should be further noted that no Canadian testing ever substantiated the claims of 20-30 percent savings made by the manufacturer".

A.G.A.'s response to the Anderson article incorporated this CGA authorized statement.

15. In the discussion in the first full paragraph of page 17, Mr. Woolfolk states that "shortly after the Hancock article appeared, Mr. Hart, President of A.G.A., paid a visit to MLG&W". Mr. Woolfolk continues: "I am told that AGA put considerable pressure on MLG&W employees to change their positions".

Mr. Hart spent a considerable period of time in Memphis in November, 1972 to visit with his daughter who was in the hospital in Memphis for a prolonged series of severe operations. As is customary, whenever he is in a city where there is a member company, he paid a visit to MLG&W. Among other things, he discussed the Vent-O-Matic device and the Anderson article with Mr. Henze, the President, and Mr. Gandy, General Manager, to ascertain what the MLG&W judgment was. Mr. Hart has previously testified that those representatives of MLG&W with whom he talked indicated to him that they did not believe that the statements of lower-ranking employees attributed to MLG&W represented the official position of that company, and further, that he at no time attempted to suggest, urge or press any position upon them.

After publication of the Hancock article in the Memphis Press-Scimitar on December 21, 1972, A.G.A. sought to clarify Mr. Taylor's position, which appeared different from his previous statements. On January 31, 1973, MLG&W issued its position paper on automatic devices, a copy of which A.G.A. received for its information. A.G.A. officers and employees did not urge the adoption of any position upon MLG&W with respect to the flue damper nor did A.G.A. write or assist in the writing of any part of the position paper.

Further, in the middle paragraph of page 18, the allegation is made that it was simply a matter of MLG&W employees choosing sides: Save-Fuel Corporation or the people they serve with on A.G.A. committee. In point of fact, the MLG&W employee who was a member of the Z21 Committee voted on both letter ballots for the approval of the proposed automatic flue damper standard.

COMMENTS CONCERNING MR. WOOLFOLK'S TESTIMONY AS RECORDED IN THE SENATE TRANSCRIPT

With respect to Mr. Woolfolk's testimony as recorded in Volume 7, of the Senate Report of Proceedings, A.G.A. wishes to make the following comments:

Many of the arguments which were made in Mr. Woolfolk's written Statement reappear in the pages of the Senate transcript concerning Mr. Woolfolk's testimony, and for the sake of brevity, A.G.A. wishes to incorporate by reference its foregoing rebuttal testimony in response to Mr. Woolfolk's oral testimony. Certain specifics, however, warrant additional comment.

1. Page 565, lines 2-3, refers to an "approved accessory certificate". As previously stated, A.G.A. tested and certified a series of furnaces incorporating the Vent-O-Matic device. Save-Fuel itself decided that the A.G.A. extension certificates would state that the trade name of the furnace certified was Vent-O-Matic and that the company is Save-Fuel Corporation. This format is no different than the arrangement of other extension certificates concerning which the named company is not the manufacturer of the appliance certified, such as Sears and Roebuck, or Montgomery Ward.

2. Page 565, line 15, indicates that R. V. Myer was "then in charge of the lab". In fact, R.V. Myer was Assistant Director.

3. Page 566, lines 6-8, states that "they appointed a Secretary of the Task Force. The Secretary did not even serve . . .". Mr. O.C. Davis was invited to serve as Chairman of the Task Force; however, he declined that invitation and was never appointed chairman.

4. Page 572, lines 1-18, alludes to the FTC investigation into the subject of flue dampers.

In 1973, the FTC initiated an investigation into the flue damper matter. Pursuant to an FTC inquiry, A.G.A. supplied information explaining the certification program, Z21 Committee, the safety dangers of improper installation, and the misrepresentations made by Save-Fuel. Mr. Hodgdon testified in November, 1973. In April 1974, pursuant to subpoena, A.G.A. submitted a file cabinet drawer full of laboratory and Z21 Committee records. A.G.A. headquarters documents and additional documentary submissions were thereafter submitted. Frank Hodgdon again testified at the FTC in December of 1974, as did F. Donald Hart. Thereafter, A.G.A. supplied additional information as requested by the FTC.

A.G.A. fully cooperated with the FTC in its investigation, and understands it was terminated on the grounds that no action was warranted.

5. Page 574, lines 8 ff. Mr. Woolfolk is entirely incorrect in alleging that standards were developed in "two or three months" for "spark lighters" after the State of California "approved automatic lighters". The California State Energy Resources Conservation and Development Commission at its March 31, 1976 meeting adopted regulations to become effective in 1978, prohibiting continuously burning pilot lights on selected types of new residential appliances. At the Commission's request A.G.A. provided information as to the existing coverage within various appliance standards with respect to electric pilot ignition and direct (main burner) ignition, and to the length of time such coverage existed.

American National Standards for forced air furnaces and for boilers have contained provisions for intermittent electric hot wire or spark pilot igniters since January 1, 1935, and for direct spark main burner ignition systems since June 3, 1971. Many models of these appliance types have been design certified under these standards. Many other major appliance types also have similar coverage, including outdoor furnaces, infrared heaters, clothes dryers, unit heaters and so forth.

6. Page 581, lines 7 ff. As pointed out in A.G.A.'s prepared testimony in this matter, all of the rights and remedies which Mr. Woolfolk alleges are needed in the private standards system were afforded to him in this matter, with the exception of any appeal of the action of the Z21 Committee. As was stated earlier, his real complaint is that his arguments as to the safety of his device were not persuasive to those required to pass upon the matter.

With respect to the right of appeal, it should be noted that this right also exists when the product in question is a generally recognized one for which standards exist and where those standards are being reviewed or revised.

7. Page 722, line 2. Dr. John classified the Vent-O-Matic device as a "fail-safe" device. This is not the case, certainly with respect to those damper devices heretofore sold by Mr. Woolfolk. As was pointed out in item 10 of A.G.A.'s supplemental testimony, in the event of electrical failure, these devices would fail in the closed position, even on a furnace which could be lighted by hand in the event of power failure.

Further, the system certainly is not "fail-safe". Among other possibilities, there are on occasion mechanical failures of gas valves, usually when a piece of foreign material prevents proper closure of the valve. In such a case, the thermostat would be satisfied and would close the damper; however, the gas would continue to burn and there would be a strong likelihood of the house filling with carbon monoxide. The proposed standard seeks to minimize this by requiring that the Vent-O-Matic only be utilized on furnaces and boilers having double valves—while even this is not "fail-safe" it substantially reduces the likelihood of this particular failure.

STATEMENT OF ROGER W. SANT, ASSISTANT ADMINISTRATOR FOR ENERGY CONSERVATION AND ENVIRONMENT, FEDERAL ENERGY ADMINISTRATION

INTRODUCTION

In a letter from the Chairman dated March 5, 1976, John Muller, an employee in our office, was asked to report on FEA's past work and its current evaluation of automatic flue gas dampers as a means of reducing the energy consumption of certain gas and oil fired heating furnaces, boilers and hot water heaters.

Energy conservation problems are generally difficult to solve and the flue damper problem is no exception. An oil or gas fired heating furnace will generally have an efficiency of 75% on the test block at the manufacturer's plant. In actual year-round use, however, it ordinarily will deliver to the home less than 50% of the heat content of the fuel burned. The actual year-round efficiency of a hot water heater is even lower. One of the principal reasons for these low real efficiencies is the loss of heat which takes place during the heating season, during periods when the furnace is not in operation. Previously warmed air from the room where the furnace is located enters and passes through the furnace and draft hood and flows up the chimney. The natural draft induced by the chimney causes this air flow to take place. (In summer, cooled air is also lost because of the chimney.) Not only is warmed room air lost, much of the heat in the metal of the furnace or heater is carried off also.

Among the methods for reducing this loss of conditioned air through the flue are:

(a) Install the furnace out-of-doors. This will stop loss of conditioned air. Unfortunately, it also means foregoing the recovery of heat from the warm furnace casing which amounts to 5% of the energy in the fuel.

(b) Leave the furnace inside but install duct work to bring in air from out-of-doors directly to the furnace and draft hood. This concept called "sealed combustion" has only recently attracted serious attention.¹

(c) Reduce the capacity of the existing burner by reducing the open area of the orifices through which the fuel flows. This will increase the total burning time, reduce the total down time, and thus reduce the loss of conditioned air. The building will still be comfortable on a cold day. Most furnaces were oversized to begin with and subsequent installation of storm windows and attic insulation further increased the amount of overcapacity.

(d) Install a damper in the flue which would close automatically when the furnace is shut off. This will reduce the loss of conditioned air during periods when the furnace is not operating.

(e) Install a heat recovery device.

The importance of these standby energy losses has only recently become recognized and, indeed, even today their existence is still being ignored by some individuals. Leadership in dealing with these losses appears to be in Europe rather than in the United States. Flue gas dampers were developed in Germany four decades ago while more recently in Britain, progress has been made in the development of sealed combustion systems.

Methods (a), (b), and (c) above would appear to be presently permitted by applicable American codes. Method (d) can be used if the automatic flue gas damper is installed at the factory on a furnace, boiler or hot water heater identical to a prototype which has been previously tested and approved by the American Gas Association (AGA).

At the present time, no furnace is being offered for sale in the United States with the damper installed. We know of only four organizations who have offered an automatic flue gas damper for sale in the United States:

Werner Diermayer, "Diermayer-Klappen" or "Diermayer-Dampers," 1275 Panorama Drive, Lafayette, Calif. 95549; phone: 415/283-2609.

Flair Manufacturing Corp., "Stack Pack", Hauppauge, L.I., New York 11787; phone: 516/234-3600.

Save-Fuel Corp., "Vent-O-Matic", Charles E. Woolfolk, Fairway Towers, 475 N. Highland, Memphis, Tenn. 38122; phone: 901/327-1182.

Trionic Industries, Inc., "Heating System Sentinel", 6720 Allentown Blvd., Harrisburg, Pa. 17112; phone: 717/652-0761.

Most local jurisdictions will not approve the installation of a flue gas damper on existing gas furnaces in the home unless the device is certified as suitable for that application by the American Gas Association (AGA). AGA will not undertake certification tests because the American National Standards Institute (ANSI) Subcommittee Z21 declined (for safety reasons) to issue a standard covering retrofit installations of the damper. The situation for oil furnaces is somewhat the same. Many states require an Underwriters Laboratory listing before permitting sale of the damper. The Underwriters Laboratory will not list the device as an accessory, but insists it be tested and listed as part of the furnace or other major equipment.

The future of the automatic flue gas damper has been threatened by the recent upsurge in interest in the sealed combustion system which is said to offer comparable energy savings allegedly without a safety problem.

GOVERNMENT ACTIVITIES

Research programs

Engineers of the National Bureau of Standards (NBS) have performed studies to determine how the efficiency of water heaters could be improved. FEA and NSF jointly supported work at Oak Ridge National Laboratories directed at improving the efficiency of space heating furnaces and boilers. None of this work, however, included testing of automatic flue gas dampers. FEA

¹ Measures (a) and (b) have an additional advantage in winter. They both eliminate the loss which occurs during combustion due to use of air already warmed, i.e., air on which the energy conversion loss has already been taken. Equipment fitted with a sealed combustion system is referred to as a "direct vent appliance."

is currently funding an oil fuel utilization project within NBS which will focus largely in the identification of existing techniques for improving the energy efficiency of residential fuel oil furnaces. Techniques or equipment that require additional research before they can be widely adopted will be referred to the Energy Research and Development Administration (ERDA). FEA anticipates that automatic flue dampers will be one of numerous techniques examined by NBS under this project.

ERDA is establishing an oil burner-furnace/boiler testing facility at the Brookhaven National Laboratory, Brookhaven, Long Island, New York. A purpose of this facility is to evaluate oil fired space conditioning systems. Promising technologies identified during these evaluations will be considered for ERDA research, development and demonstration. Automatic stack gas dampers and sealed combustion systems will be included in these evaluations.

An advisory committee composed of representatives from the National Bureau of Standards, American Society of Heating, Ventilating, Refrigeration and Air Conditioning Engineers (ASHRAE) and American Society of Mechanical Engineers (ASME), National Oil Fuel Institute (NOFI), oil companies and others will advise on the requirements of this facility.

Voluntary programs

Gas or oil fired hot water heaters are potential targets for flue dampers. As one element in the government's effort to reduce the Nation's consumption of energy, a Voluntary Appliance Efficiency Goals Program was initiated in 1975. Under this program, manufacturers of household appliances and hot water heaters were asked to agree voluntarily to raise the efficiency of their products. Under an associated Voluntary Appliance Labeling Program, the manufacturers were asked to agree to affix to each appliance and residential hot water heater a label indicating its efficiency.

For the initial direct action toward reducing the amount of energy used in residential space heating, FEA opted to concentrate upon upgrading the thermal characteristics of buildings.

The reasons for this choice were:

- (1) adequate technical data was already available;
- (2) there were no safety problems or other complications;
- (3) Savings were large and the payout fast. For example, the installation of attic insulation in an existing home with none would reduce energy use by over 20%. The cost of \$150-200 would be recovered before the end of the second heating season.

Public education

FEA, FEO, its predecessor, and HUD have attempted to acquaint the public with the existence of automatic flue gas dampers and the fact that they could save energy.

The following entry appears on a list of energy conservation measures which was prepared in 1973: "Install automatic furnace flue dampers to stop loss of hot air up the stack during periods when the furnace is in the off cycle (Note: those dampers do not yet have AGA approval)". This list, under the title "300 Hints to Save Energy", was inserted in the Congressional Record (Senate) for Tuesday, October 30, 1973, Volume 119, No. 164, then later reprinted and distributed by the Government Printing Office.

On page 14 of the publication *Tips for Energy Savers*, the following advice appears: "When buying a new furnace select one that incorporates an automatic flue gas damper, a device which reduces loss of heat when the furnace is not in operation". When this publication was being written one manufacturer had already obtained AGA Lab Certification and the marketing of damper-equipped furnaces appeared imminent. Activity stopped, however, when the manufacturer's market survey indicated that home builders were at that time unwilling to pay a premium price for a more energy efficient furnace.

Mr. Muller presented a paper at a conference on Water Conservation and Sewage Flow Reduction held at Penn State University in April 1975. The paper was entitled "The Potential for Energy Savings Through Reductions in Hot Water Consumption". On page 10 the following appeared:

"Hot Flue Gas Loss.—The gases and air which pass up the flue represent the largest single loss for a gas- or oil-fired heater. It is desirable to reduce this loss without raising the cost of the heater excessively.

"Another factor to be considered is that the total energy consumption of the water heater, with only the pilot light in operation or with the main burner in

service, may be greater than the BTU content of the fuel consumed by the heater. This is because air required for combustion is often drawn from living space. For many houses, this is air which has been heated in winter by the furnace. In summer, it may have been cooled by air conditioning equipment. This loss of conditioned room air can be eliminated by installing the water heater out of doors, or it can be installed indoors in a sealed room or box with duct work provided to bring in combustion air from outdoors.

"Another way to reduce the loss of warmed room air is to install a damper which automatically closes off the flue when the main burner shuts off. A small opening is provided in the damper to permit the combustion products from the pilot burner to be carried off. An automatic flue gas damper can be installed on the water heater at the factory. Retrofitting a damper to equipment already in use is thought to involve some risks; if improperly done, it could permit noxious gases to be discharged into living spaces. Accordingly, such installation is opposed by the American Gas Association (AGA) and the American National Standard Institute (ANSI) and is, therefore, not permitted by most code jurisdictions."

Mandatory programs

It was not until December 22, 1975, that FEA received authority to take more effective action to improve the efficiency of home furnaces and water heaters. On that date, the Energy Policy and Conservation Act, Public Law 94-163, went into effect. It requires that by December 22, 1976, the Administrators of FEA shall by rule prescribe an energy efficiency improvement target for furnaces. The target is to be selected so as to achieve the maximum improvement in energy efficiency which the Administrator determines is economically and technologically feasible to obtain in furnaces manufactured in 1980. Manufacturers will be required to affix a label showing the estimated annual operating cost of the unit.

In order to determine what efficiency targets are economically and technologically feasible, it is necessary for FEA to evaluate the performance of the various energy conserving concepts proposed heretofore, including dampers and sealed combustion. Requests for proposals to make the evaluations are presently going out to research firms and a contract is expected to be awarded by the end of April.

MR. MULLER'S EXPERIENCE

As an employee of the Federal Government, Mr. Muller did make a number of attempts to interest AGA and the Gas Appliance Manufacturers Association (GAMA) in adopting automatic flue gas dampers. These efforts were not successful. Some of these efforts were prior to his employment with FEA as well as the last two years in the Agency.

For example, below are some of the comments which John Muller received from officials of the Gas Appliance Manufacturers Association (GAMA) when seeking their support of automatic flue gas dampers.

- a. Gas furnaces do not lose much heat when the furnace is off—9/22/72.
- b. Utility officials will object for safety reasons—9/22/72.
- c. Utility officials will object for service reasons—9/22/72.
- d. At present no damper could be installed in a furnace in the U.S. Most code authorities will not permit their installation—9/29/72.
- e. It is guessed that dampers would bring seasonal efficiency of a furnace to 75% from 70%—9/29/72.
- f. The cost might be \$100 which is too much for what you save (in fuel bills)—9/29/72.
- g. Fuel savings are only 3-6%—10/26/(73).
- h. In 95% of cases 2 or 3 appliances tie into one chimney. If damper is put in furnace flue, room air will exhaust through gas hot water heater—10/26/(73).
- i. (If a separate damper were fitted to each appliance flue) savings would be maximum of 10-50%—10/26/(73).
- j. Canadian Gas Association examined Vent-O-Matic. First approved it; now have reconsidered because of the safety question. Still not yet approved in Canada—10/26/(73).
- k. Z21 Committee has appointed a task group to look into Vent-O-Matic. No progress has been made because they have been unable to find a chairman. They have been looking for one since April 1972—10/26/(73).
- l. A damper manufacturer can market his product as part of a whole furnace if the furnace manufacturer submits prototype of the package to AGA labs and

obtain AGA seal of approval. There never has been any barrier that prevents a furnace manufacturer from adding a damper to his product—10/26/(73).

m. If a damper were retrofitted to an existing furnace, the furnace manufacturer would not accept responsibility. Warranty problems would be involved—10/26/(73).

n. In Louisville, Kentucky area the local inspector found some dampers installed incorrectly and directed removal of all of them—10/26/(73).

o. AGA does not write the standards. ANSI does—10/26/(73).

p. ANSI's Z21 committee has 40 members. Only 20% are AGA or gas utility people. 20% are representatives of gas appliance manufacturers (furnaces, heaters, control valves, controls). 60% are general interest representatives, including 8 government agencies and a representative of American Home Economics Association.

q. It is possible to wire improperly so that damper will remain closed when burner comes on. Carbon monoxide could enter living space. Dampers have never been allowed in flues for this reason—10/26/(73).

r. Damper will not help (save energy) if the furnace is installed in the basement—10/26/(73).

s. Flair Manufacturing will not market automatic flue gas dampers except to an original equipment manufacturer, because they are concerned about misapplication (in retrofitting)—5/3/74.

t. Regarding the German dampers—the official said he is not intimately familiar with German furnace construction. Does not know make up air requirements (number of air changes/hour). We have 100,000 appliances for everyone in Germany—10/5/75.

u. With a sealed combustion system there is no loss of heated air, as either combustion air or draft hood dilution air—10/23/75.

v. Time is necessary for thermally actuated damper to open. Flue gases may not go up the chimney if the furnace is cold. A bathroom fan may create negative draft—(12)/5/75.

w. In the case of a thermally actuated damper, when burner first comes on the production of carbon monoxide is at a maximum. It will not be able to go up the flue. It will come into the room—(12)/5/75.

x. With the thermally actuated damper, combustion products will spill out at startup, will increase level of carbon monoxide in the home. Also may get a "puff" on startup because there is no flow through the flue to carry off excess natural gas—12/19/75.

y. Typically the furnace burner may run for 3 minutes and be off for 7 minutes. Therefore 6 times each hour it is dumping flue products into living space if that is where the furnace is located—12/5/75.

z. With present day gas furnaces, if the main burner valve fails to close completely, the escaping gas may not be ignited by the pilot; the unignited gas will be safely carried away up the chimney. However, if a flue damper were installed, the leaking gas will not be carried away but accumulate creating an explosion hazard—12/5/75.

aa. The Z21 Committee meets April 14. If there are no objections, the boiler standards will be accepted and sent up to the ANSI Board of Standards. The furnace standard is now being re-written—3/15/76.

ab. Testing of a damper-equipped boiler in accordance with new standards has finished. The boiler manufacturer will probably receive AGA certification for this product—3/15/76.

ac. AGA Labs usually will not test without a standard. Made an exception years ago for Vent-O-Matic evidently—3/15/76.

Many of the same comments were received in telephone conversations with AGA officials, but a few fresh comments were received as well:

A. Local ordinances would require AGA approval before permitting installation—10/27/72.

B. Z21 Committee is setting up a task force to determine if the damper is safe—10/27/72.

C. The next move is up to the American National Standard Institute (ANSI)—10/27/72.

D. Safety is the primary concern—10/27/72.

E. Savings of 5.8% has been reported by a utility—10/3/73.

F. The damper is not suitable for installation on furnaces which permit manual opening of main fuel valve—12/3/73.

G. A task force of the Z21 Committee will meet and then recommend standards to Z21. Six weeks will be required for balloting—12/11/73.

H. The flue gas damper question is still with ANSI. No finding has been reported yet—1/16/74.

I. The Z21 Committee at the last meeting decided against approval of the standard for field installation of the damper. Installation might be made improperly. Decision based upon safety considerations. Instructed another committee to include damper in the standard for furnaces—5/17/74.

J. The letter ballot vote of the Z21 Committee was: 16 approved; 23 disapproved; 2 abstained—5/17/74.

K. At the next meeting it was the unanimous decision to withdraw the proposed standard. The decision to include the damper in the Furnace and Boiler Standard (for factory installation) was also unanimous—5/17/74.

L. AGA is limited to certifying equipment under existing ANSI standards—5/17/74.

M. AGA itself does not vote at ANSI meetings. Its representative is on the Z21 Committee however. AGA prepares the Agenda, writes the minutes—5/17/75.

N. The Z21 Committee is not opposed to the use of the damper. It is opposed to field installation—5/17/75.

O. The prime concern of the Z21 Committee is safety—5/17/74.

P. What if furnace and water heater vent into a common flue? (Implies this question: What if damper responds to signal for furnace shut off while the water heater remained in service?)—5/17/74.

The future of all dampers received a severe blow when in April 1974, ANSI recognized the legitimacy of the safety objections by ruling against approval of a standard permitting installation of the device on equipment already in place. The future of thermally actuated dampers received another severe blow in July and December 1973, when the Z21 Committee determined that thermally actuated dampers would have to comply with the same standard as was developed for electrically operated dampers including the provision that the main burner be prevented from firing "unless the damper is in the fully open position".

One bright hope remaining was that installation of the dampers on new equipment at the factory was not precluded. Mr. Muller spoke to two leading manufacturers urging them to add to their furnace line models equipped with dampers. They declined saying that they considered the dampers unsafe and that their customers, often home builders, would be unwilling to pay the additional cost for this feature.

This was discouraging. However, two further developments renewed hope that standby losses could be cut. First, favorable reports were received on sealed combustion. Installation of such a system was not precluded by lack of an ANSI standard or absence of AGA approval.² Second, it has been learned that automatic flue gas dampers were gaining wide acceptance in Europe.

Until recently, few people in the United States had any information on the European experience with automatic flue gas dampers. FEA was largely ignorant until John Ray, Counsel to this subcommittee, provided as with data in the fall of last year.

Mr. Ray reported that a total of over 3.6 million had been installed. 1.5 million of the current design have operated without a serious accident. The device has been approved for use in four countries: Germany, Switzerland, Austria, and Belgium.

Mr. Muller passed this information on to GAMA, urging that they themselves undertake a thorough investigation of the European experience.

It remains to be seen whether GAMA will go to Europe to obtain first hand information on the record of the European dampers with respect to applications, safety, energy savings, installation and inspection procedures and customer acceptance.

SAFETY

The safety question is a complex one. ANSI, GAMA, and AGA, see a number of hazards particularly when the device is installed on equipment already in use. These hazards, as we understand them, include the following:

(1) The device could be installed in a flue which serves two pieces of equipment. The damper could close when furnace (A) shut off while furnace or water heater (B) continued to operate. The combustion products from (B), unable to

² It is our understanding that today several manufacturers offer furnaces with this sealed combustion feature. At least one manufacturer will supply a sealed combustion kit for retrofit field installation on his own conventional furnace.

enter through the chimney, would then be forced out through furnace (A) into the room. Any carbon monoxide present in these gases could result in deaths.

(2) The device (electrical version) could be improperly wired so as to close when it should open.

(3) Installation of the gas damper will result in lower stack temperature and this may lead to condensation of moisture from stack gas. This in turn could lead to corrosion of the venting system and eventually to leakage of the flue gas.

(4) Without a flue damper in place, and leakage of un-ignited gaseous fuel into the combustion chamber (through a defective but supposedly closed control valve, for example) safely passes up the chimney. Installation of the flue damper could result in a dangerous build-up in the concentration of explosive gas in the furnace.

In the case of the thermally actuated damper, concern was also felt about two more hazards:

(5) The main burner is permitted to fire when the damper is not in the fully open position. This means that on every start-up some combustion products may be discharged into living space.

(6) The device will not fail safe. The furnace could still operate even if the damper failed to open for any reason.

It is not appropriate for FEA to attempt to evaluate these hazards; that is the province of safety engineers.

SAVINGS POTENTIAL

The potential field of application for automatic flue gas dampers includes virtually all of the Nation's oil and gas fired heating furnaces, boilers and hot water heaters equipped with on-off controls. While the damper would be of some help in the case of modulating furnaces, we have assumed the savings are negligible and, therefore, it is appropriate to omit such equipment from further consideration.

In the residential sector, the on-off method of control is usually selected for space and water heating equipment in conventional single family homes, mobile homes, and in all but the largest apartment buildings.

Similarly, in the commercial sector on-off controls are preferred for all but the largest buildings. For the very large buildings, steam or hot water boiler rated at 30 Horsepower or more are employed and for such equipment modulating controls are ordinarily used.

Table 1 is a summary of the 1970 annual fuel requirement of America's homes. Similar data for commercial buildings is shown in Table 2. Also shown in the table is an estimate of the fuel consumption taking place in equipment served by on-off controls.

I conclude that roughly 4,000,000 Barrels Per Day of Oil Equivalent (BPDOE) must have been consumed in 1970 by residential furnaces, boilers and water heaters responding to on-off controls. For the commercial sector, the comparable figure was roughly 550,000 BPDOE. Leading to a total of about 4,500,000 BPDOE.

AGA data summarized in Table 3 indicates that while the number of homes heated with gas has increased, the total consumption of gas by residential customers is essentially the same today as it was in 1970. This is because in the last few years gas is being used more widely. Thermostats are set lower. Many homes have been upgraded with attic insulation, storm windows and furnace servicing. The situation with regard to home heating fuel oil is believed to be similar. I believe we can be confident that the consumption of gas and oil in furnaces, boilers, and heaters with on-off controls today is in excess of 4,000,000 BPDOE.

The energy savings realizable by installation of an automatic flue gas damper in a particular building is dependent upon many factors, including:

(a) Location of furnace or water heater in the building—whether in conditioned space or non-conditioned space. Savings will be far lower when the furnace is installed in an unheated attic or basement than when installed in a living room.

(b) Total burn time—the number of hours the furnace is in operation. This is a function of weather conditions, heat requirements of the building and the capacity of the furnace.

(c) Intensity of Winds.

(d) Tightness of the building structure.

(e) Presence of other flues.

(f) Type of furnace.

(g) Whether or not the building is air conditioned.

(h) How much the equipment is oversized for the building in which it is installed.

No nationwide inventory covering these features is available and, therefore, it is clearly not possible to arrive at a precise percent savings number which is representative of the U.S. as a whole.

There is very little in the way of impartial test data of any kind on the savings obtainable from dampers used with American furnaces, boilers and hot water heaters installed in American homes.

It is my feeling that perhaps a savings figure approaching 10 percent would be most typically obtainable, assuming dampers are fitted to both furnace and water heater. This however, is merely a guess. I may be able to give a more accurate estimate a year from now when the investigations now planned are completed.

Whatever the correct savings, installations of an automatic flue gas damper on every on-off furnace in the country could reduce the Nation's consumption of oil and gas approximately as follows:

<i>Percent reduction in fuel consumption assumed:</i>	<i>Reduction in consumption of oil and gas, BPDOE</i>
1	40,000
2	80,000
3	120,000
4	160,000
5	200,000
6	240,000
7	280,000
8	320,000
9	360,000
10	400,000
11	440,000
12	480,000
13	520,000
14	560,000
15	600,000
20	800,000
25	1,000,000
30	1,200,000

SUMMARY

1. The automatic flue gas damper is one of several measures which hold promise for reducing standby losses in oil and gas fired furnaces, boilers and hot water heaters equipped with on-off controls.

2. Studies on furnaces, boilers, and water heaters already performed confirm that the damper does save fuel. Test results indicate fuel is also saved by sealed combustion systems.

3. The tests done to date on either approach are not sufficient to permit a good estimate of the level of savings obtainable for the typical U. S. installation, nor is it possible to determine if the devices are cost-effective.

4. Widespread adoption of either of these devices or any other effective method for reducing standby losses could have a significant impact on the Nation's consumption of scarce fuels and could result in significant reductions in petroleum imports.

5. It is not FEA's intent nor is it within our authority to require the adoption of any particular energy conserving device. Instead, under the provisions of the Energy Policy and Conservation Act, FEA will set efficiency targets and monitor the progress of furnace manufacturers toward meeting them. What measures are used to meet the targets will be left up to each manufacturer. If insufficient progress is made toward meeting the efficiency targets, proceedings will be instituted to determine whether or not a standard should be set.

6. In order to obtain a clear picture of just what efficiency levels are reasonably achievable, FEA will contract for the performance of tests to evaluate the savings obtainable with automatic flue gas dampers, sealed combustion and other methods. These findings will be made available to the industry and the general public.

As to automatic flue gas dampers:

7. There are several manufacturers ready and willing to sell dampers in the United States as original equipment furnished as part of each new furnace and/or as retrofit items to be installed on furnaces already in the field.

8. In the United States, no damper can be installed on a furnace, boiler or water heater already in the field. ANSI and AGA fear that some field installations may not be properly done creating the possibility of accidents, injuries and perhaps deaths.

9. It would be appropriate that GAMA and AGA acquire more first-hand information about European practices.

TABLE 1.—1970 FOSSIL FUEL CONSUMPTION FOR SPACE AND WATER HEATING IN SINGLE FAMILY AND MULTI-FAMILY HOMES (EXCLUDING ELECTRICAL)

[In trillion Btu]

	Mobile home		Conventional single family		Low density (1-4 units)		Multifamily low rise		Multifamily high rise		Grand total
	Space heating	Water heating	Space heating	Water heating	Space heating	Water heating	Space heating	Water heating	Space heating	Water heating	
Petroleum.....	76	1	2,366	132	494	48	133	28	159	36	-----
LPG.....	24	5	370	87	19	7	10	2	3	1	-----
Gas.....	35	8	3,197	817	646	176	169	74	71	28	-----
Total.....	135	14	5,933	1,036	1,159	231	312	104	233	65	9,222
Consumption in equipment with on-off controls (percent).....	95	99	95	99	95	99	80	85	25	30	-----
Trillion Btu.....	128	14	5,636	1,025	1,101	229	250	88	58	19	8,548

$$8,548 \times 10^{12} \text{ Btu} \times \frac{470,000 \text{ BPDOE}}{1,000 \times 10^{12} \text{ Btu/yr}} = 4,000,000 \text{ BPDOE}$$

Note.—Basic data from pages A-53—A-56 of Federal Energy Administration Project Independence Blueprint Final Task Force Report "Residential and Commercial Energy Use Patterns 1970-1990," prepared by Arthur D. Little.

TABLE 2.—1970 FOSSIL FUEL CONSUMPTION FOR SPACE AND WATER HEATING IN COMMERCIAL BUILDINGS

[In trillion Btu]

	Office buildings		Retail establishment		Schools		Hospitals		Other		Grand total
	Space heating	Water heating appliance refrigeration	Space heating	Water heating appliance refrigeration	Space heating	Water heating appliance refrigeration	Space heating	Water heating appliance refrigeration	Space heating	Water heating appliance refrigeration	
Petroleum.....	245	11	161	13	301	16	117	5	271	24	-----
LPG.....	14	0	20	0	23	0	7	0	33	0	-----
Gas.....	200	8	131	11	253	13	86	4	225	19	-----
Total.....	459	19	312	24	577	29	210	9	529	43	-----
Consumption in equipment with on-off controls (percent).....	60	65	70	75	70	75	25	30	25	30	-----
Trillion Btu.....	275	12	218	18	404	22	53	27	132	13	1,174

$$1,174 \times 10^{12} \text{ Btu/yr} \times \frac{470,000 \text{ BPDOE}}{1,000 \times 10^{12} \text{ Btu/yr}} = 550,000 \text{ BPDOE}$$

TABLE 3.—RESIDENTIAL GAS USE

	Residential gas consumption (trillion Btu)	Number of residential gas customers
1970.....	4,923.7	38,097,000
1971.....	5,039.7	38,788,000
1972.....	5,143.7	39,430,000
1973.....	4,993.6	40,115,000
1974.....	4,864.8	40,671,000
1975.....	4,977.4	41,000,000

¹ Preliminary end-of-year figure. All other figures in this column are midyear figures and final.

Note.—Above information obtained by telephone Mar. 16, 1976, from Burt Kemp of American Gas Association Statistics Department.



May 7, 1976

Honorable James Abourezk
 United States Senate
 1105 Dirksen Senate Office Building
 Washington, D. C. 20510

Dear Senator Abourezk:

I have reviewed the American Gas Association's (AGA) statement and would like to submit these additional comments for the record.

AGA has not replied to the allegations that I have made regarding its refusal to certify the Vent-O-Matic with any degree of specificity; rather, it has soft-pedaled my allegations and attempted to buttress its own position through the use of scare tactics.

On Page Three of Mr. Hart's statement, he attempts to downplay the statements contributed to the Memphis Light, Gas and Water Division by labeling the speakers "lower level employees." However, the facts show that the statements were made by Mr. R. W. Vaughn, who was the Manager of Customer Relations, and Mr. George G. Watts, who was Administrative Assistant of Customer Relations.

On Page Two of Mr. Hodgdon's statement, he takes exception to my allegation that utility companies and gas appliance manufacturers have disproportionate representation on the Z-21 Committee. I stand by my statement. For example, by AGA's own figures, there are 41 members on the Z-21 Committee. By my count, utility companies have 10 members, gas appliance manufacturers have 10 members, organizations whose membership is made up of utility companies or gas appliance and equipment manufacturers, have 10 members, and the chairman, who is called an independent member, was once an employee of the American Gas Association. So, utility companies and gas appliance manufacturers account for 31 out of 41 members. I suspect that if one could get the other 10 members to reveal their true loyalty, the number would be even higher.

On Page Three of Mr. Hodgdon's statement, he states that "these people who voted in 1974 were aware of the action of the Canadian inspection authorities...inbanning these devices from Canada in 1971." Two comments: First, Mr. Hodgdon seems to be saying that the committee did not vote on the merits of the device, but rather on the action of another inspection authority. Second, it must be kept in mind that Mr. Wank of the Canadian Gas Association read the Minutes of the Interprovincial Gas Advisory Council which noted that its refusal to allow the installation of Vent-O-Matic in Canada had nothing to do with its safety, but rather because it did not want any unnecessary obstruction in the flue. A matter which is now being reconsidered in light of Canada's fuel shortage.

On Page Five, Mr. Hodgdon notes that AGA heard from at least one distributor "with respect to inherent safety hazards involving slow-acting valves." The company which AGA is referring to is the Harster Heating and Air Conditioning Company, St. Louis 23, Missouri. I have reviewed the communications between Mr. Fred Wallace of Harster and Mr. Bill Diehl, who was then President of Save-Fuel Corporation. Mr. Wallace, in his letter, indicated that the installation of a Vent-O-Matic on a home with a slow



Page Two
 Honorable James Abourezk
 Washington, D. C.

May 7, 1976

acting valve resulted in the homeowner "smelling something (and) their eyes would also water." The communication regarding this incident is dated October 1969 through January 1970. This was prior to my joining Save-Fuel full-time, but I can report the following.

Vent-O-Matic was on the market prior to the so-called modulating valve (slow-acting or delayed-acting valve). When the valve was introduced, we redesigned Vent-O-Matic to allow for the combustion product produced by delayed acting valves to escape. Vent-O-Matic was tested in Memphis, Tennessee on delayed valves and random carbon monoxide tests were conducted and they did not get enough to get a reading, which showed the device to be safe on a delayed valve.

I would like to add that we have over 5,000 units on the market, many of them on delayed valves, and we know of no accidents at all. Mr. Hodgdon's term "inherent safety hazards" is overkill. Even before we redesigned our vent damper, there were no chances that it would cause serious injury to the homeowner, though it would cause discomfort in some instances. I cannot say Mr. Wallace's account of what happened in the home noted above did not happen. I think what happened to Harster is what happened to many dealers who bought our product; that is, after purchasing a supply from us, they later learned that it was not AGA approved as a retrofit unit, and consequently, they could not sell it in their jurisdiction. Indeed, Mr. Fred Wallace noted this in his letter and requested a refund of \$526.37 (which Safe-Fuel did refund) "unless (we could) convince AGA" to approve our device.

On Pages Five and Six of Mr. Hodgdon's statement, AGA takes exception to our savings claims and makes reference to a test that was conducted by the Institute of Gas and Technology. First, I think AGA should have looked for a less biased laboratory to conduct the test. It is my understanding that about one-third of IGT's revenue comes from the AGA, and its membership is made up primarily of utility companies. Mr. Hodgdon also notes that a forced-air furnace must have thermal efficiency of 75%. The fuel savings to be recognized by the installation of a vent damper, in the main, does not result from improved efficiency of the furnace, only about five or six percent of the savings can be contributed to improved efficiency. The largest percent of the savings is a direct result of the damper plate trapping the conditioned air in the house. This results in the house staying heated longer, and consequently, resulting in the furnace having a longer down period.

Finally, AGA has tried to make me look like a wild-eyed businessman out to make a lot of money without giving any consideration to the safety of the homeowner. This is, of course, untrue. Save-Fuel did not storm out into the marketplace and start selling vent dampers. We had our device tested every step of the way - both for safety and fuel savings.

Sincerely,

SAVE-FUEL CORPORATION

A handwritten signature in dark ink, appearing to read "Charles E. Woolefolk", is written over the typed name.

CHARLES E. WOOLEFOLK

CEW/mcg

FACTORY: TUNICA, MISSISSIPPI 38676 • (601) 363-1664 MEMPHIS OFFICE: ~~MEMPHIS, TENN. 38112~~ (901) ~~382-1182~~
 475 N. Highland, Apt. 4B 38122 327-1182

WRITTEN QUESTIONS SUBMITTED TO WITNESSES FOR RESPONSES

ADDITIONAL QUESTIONS ASKED OF MR. F. E. HODGDON BY MR. RAY

Question 1. How many members, excluding alternates, does the Z-21 Committee have?

Answer. 41.

Question 2. How many members serve as representatives for utility companies?

Answer. 9 utility companies and 1 municipal utility.

Question 3. How many members serve as representatives for gas appliance and equipment manufacturers?

Answer. 10.

Question 4. How many members, excluding government employees, are considered "representatives of the public interest" ("general interest")?

Answer. 14.

Question 5. Using the figure from the preceding answers, please identify each member by name, the organization he represents on the Z-21 Committee and membership of that organization.

Answer. See Attachment 1, list of Z21 member organizations and each representative by name and organization as of December 10, 1973. Appended is our understanding of the membership of each organization. Also attached are the changes in the Z21 members and representatives between December 10, 1973 to April 14, 1976 and a complete roster¹ of the Z21 Committee as of April 14, 1976.

In responding to these questions, we have assumed you wish the answers to be based on the roster of the Z21 Committee as of December 24, 1973 through April 10, 1974, in accordance with the attached personnel list of the Z21 Committee as of December 10, 1973. While our responses generally use the term "members" in the same context as used in your questions, it should be noted that the organizations are members of the Z21 Committee and that those individuals shown on the Z21 roster are the representatives of those organizations.

Attachment 1 follows. Questions and answers continue on p. 691.

Attachment 1

Descriptions of American National Standards Committee Z21 Member Organizations

ARI-----	Air-Conditioning and Refrigeration Institute, ¹ manufacturers of airconditioning, warm air heating, and commercial and industrial refrigeration equipment, components, parts, accessories, and allied products.
A.G.A-----	American Gas Association, ¹ distributors and transporters (pipeline companies) of natural, manufactured, and mixed gases.
AHEA-----	American Home Economics Association, ¹ professional organization of home economists.
Amer. Ins. Assn-----	American Insurance Association, ¹ companies providing property and liability insurance and suretyship.
API-----	American Petroleum Institute, ¹ producers, refiners, marketers, and transporters of petroleum and allied products such as crude oil, lubricating oil, gasoline, and natural gas.
APGA-----	American Public Gas Association, ¹ municipally owned gas systems; private corporations, persons or firms interested in public gas systems are associate members.
AHAM-----	Association of Home Appliance Manufacturers, ¹ major appliance and portable appliance manufacturers.
CGA, The-----	Canadian Gas Association, Canadian gas companies, gas producers, and gas appliance, and equipment manufacturers.

¹ See attachment B to prepared statement, p. 596.

FM	Factory Mutual System, ¹ mutual fire insurance companies insuring large industrial and commercial properties.
FHA	Federal Housing Administration, Federal organization.
GAMA	Gas Appliance Manufacturers Association, ¹ manufacturers of residential, commercial, and industrial gas appliances and equipment, as well as equipment used in the production, transmission, and distribution of natural gas.
GSA	General Services Administration, Federal Supply Service, Federal organization.
HEW	Department of Health, Education, and Welfare, Federal organization.
IIA	Incinerator Institute of America, ¹ manufacturers of incinerators for municipal, industrial, commercial, and domestic use.
IAPMO	International Association of Plumbing and Mechanical Officials, ¹ Government agencies, administrative officials, manufacturers, etc. related to the plumbing field.
MCAA	Mechanical Contractors Association of America, Inc., ¹ Contractors who furnish and install piping, piping systems and related equipment for heating, cooling, refrigeration, ventilating and air conditioning systems.
NEMA	National Electrical Manufacturers Association, ¹ Manufacturers of equipment and apparatus used for the generation, transmission, distribution and utilization of electric power.
NESCA	National Environmental Systems Contractors Association, ¹ Contractors involved in installation and servicing of heating, air-conditioning and refrigeration systems.
NFPA	National Fire Protection Association, ¹ representatives of business and industry, public safety officials, fire insurance personnel, and others interested in protection of life and property against loss by fire.
NLPGA	National LP-Gas Association, ¹ producers and distributors of butane-propane gas, manufacturers of equipment and utilization appliances.
NFEC	Naval Facilities Engineering Command, Department of the Navy, Federal organization.
SBCC	Southern Building Code Congress, State, county, and local officers and building officials and utilities of Southern States and others.
UL	Underwriters Laboratories, Inc., a testing and certification agency.
B of M	U.S. Bureau of Mines, Federal organization.
U.S. Army	U.S. Department of the Army, Federal organization.

No longer members :

Incinerator Institute of America (Richard P. Harper)

U.S. Bureau of Mines (Joseph Grumer)

Still member but no representative (no change) :

American Home Economics Association

Representative changes :

For NEMA : J. R. Gaul and H. W. Rice in place of Rawlings Brewer. Robert E. Kind and G. E. Willert now alternates to NEMA representatives in place of J.H. Thornbery.

For GSA : Robert D. Kerruish in place of Nicholas DeHaas.

For FHA : Mervin Dizenfeld in place of Nat L. Eure.

For FM : James M. Simmons in place of Louis H. Flanders, Jr.

For GAMA : Earl A. McGee in place of Harold J. Moss.

¹ Description as shown in "Encyclopedia of Associations, vol. I, 8th Edition."

For A.G.A. : P. B. Bevan in place of Lester R. Pickup.
 For NFEC : Max C. Geise in place of L. E. Rogers. W. E. Watkins now alternate
 in place of Willis E. Strong as alternate.

SECTION B—PERSONNEL LIST OF STANDARDS COMMITTEE Z21

Date : December 10, 1973.

American National Standards Committee Z21 on Performance and Installation
 of Gas-Burning Appliances and Related Accessories.

Secretariat: American Gas Association.

The Scope and complete roster of the Committee are shown on the attached
 pages. It is up to date as of December 5, 1973.

Classification of representatives is :

P—Producers -----	9
D—Distributors -----	10
GI—General interest -----	18
Individual member -----	1
Liaison representatives -----	3
Total -----	41

AMERICAN NATIONAL STANDARDS COMMITTEE ON PERFORMANCE AND INSTALLATION
OF GAS-BURNING APPLIANCES AND RELATED ACCESSORIES, Z21

Scope : Development of standards for gas-burning appliances and accessories
 covering construction, safe operation, performance, and laboratory methods of
 test for determining compliance therewith.

This committee exercises general supervision of the preparation and revision
 of such standards for gas appliances and their accessories by direction of activi-
 ties of 18 subcommittees, this covering initiation of assignments, supervision of
 operations and final disposition of all standards developed.

Chairman: E. O. Mattocks; *Vice Chairman*: W. L. Walls; *Administrative
 Secretary*: R. E. Cramer (Non-Member).¹

Year appointed	Name and position	Company and complete address	Classi- fication
1969.....	E. O. Mattocks, M.E., P.E., con- sultant (chairman).	P.O. Box 403, Ponte Vedra Beach, (1) Fla.	
Representing American Gas Association:			
1969.....	D. M. Amundson, vice president— operations and engineering.	Indiana Gas Company, Inc., 1630 N. D Meridian St., Indianapolis, Ind.	
1972.....	John J. Bacon, vice president— customer relations.	Boston Gas Co., 2900 Prudential Tower, Boston, Mass.	D
1973.....	W. L. Clayton, chief engineer.....	United Gas, Inc., P.O. Box 2628, Houston, Tex.	D
1971.....	C. F. Coleman, vice president— distribution operations.	Mountain Fuel Supply Co., P.O. Box 11368, Salt Lake City, Utah.	D
1962.....	Chas. B. Gamble, Jr., executive vice president.	Alabama Gas Corp., 1918 First Ave. N., Birmingham, Ala.	D
1970.....	David F. Hansen, president.....	Pennsylvania Gas & Water Co., 30 N. Franklin St. Wilkes-Barre, Pa.	D
1971.....	Henry H. Miller, manager, Gas and Appliance Service Department.	Baltimore Gas and Electric Co., P.O. Box 1475, Baltimore, Md.	D
1969.....	Lester R. Pickup, manager of customer services.	Southern California Gas Co., P.O. Box 3249, Terminal Annex, Los Angeles, Calif.	D
1972.....	Robert C. Swagler, vice president— operations.	The Peoples Natural Gas Co., 2 Gateway Center, Pittsburgh, Pa.	D
Representing Air-Conditioning and Refrigeration Institute:			
1962.....	Frederick J. Reed, director of engineering.	Air-Conditioning and Refrigeration In- stitute, 1815 North Fort Myer Dr., Arlington, Va.	GI
Representing American Home Economics Association: Appointment pending.			

¹ Mailing Address : 8501 East Pleasant Valley Rd., Cleveland, Ohio 44131.

Year appointed	Name and position	Company and complete address	Classification
Representing American Insurance Association:			
1967	W. D. Malmstedt, engineer	American Insurance Association, Engineering and Safety Department, 85 John St., New York, N.Y.	GI
Representing American Petroleum Institute:			
1973	J. S. Chalmers	Warren Petroleum Co., P.O. Box 1589, Tulsa, Okla.	GI
1969 Alternate	A. A. Mulliken, Jr.	American Petroleum Institute, Division of Refining, 1801 K St. NW., Washington, D.C.	
Representing American Public Gas Association:			
1968	Ralph D. Sparkman, gas transmission and distribution engineer, Gas Engineering Department.	Memphis Light, Gas & Water Division, P. O. Box 388, Memphis, Tenn.	D
Representing Association of Home Appliance Manufacturers:			
1972	Walter Blanck, Jr., assistant technical director.	Association of Home Appliance Manufacturers, 20 N. Wacker Dr., Chicago, Ill.	GI
1968	Alternate: John Weizeorick, assistant technical director.	do	
Representing The Canadian Gas Association:			
1965	John A. Spence, manager, approvals and codes.	The Consumers' Co., 400 Coventry Rd., Ottawa 7, Ontario, Canada.	GI
Representing Factory Mutual System:			
1949	Louis H. Flanders, Jr., chief heating engineer.	Factory Mutual Research Corp., 1151 Boston-Providence Turnpike, Norwood, Mass.	GI
Representing Federal Housing Administration (liaison representative):			
1970	Nat L. Eure, Department of Housing and Urban Development.	Federal Housing Administration, Washington, D.C.	(?)
Representing Gas Appliance Manufacturers Association:			
1970	Howard E. Brehm, corporate director of safety.	Whirlpool Corp., Research and engineering Center, Monte Rd., Benton Harbor, Mich.	P
1964	A. M. Castello, vice president, engineering.	Dunham-Bush, Inc., Harrisonburg Division, P.O. Box 979, Harrisonburg, Va.	P
1968	Robert H. Chaffee, executive vice president.	Watts Regulator Co., P.O. Box 628, Lawrence, Mass.	P
1972	Warren Eichorn, chief engineer—heating.	Duo-Therm, Division of Motor Wheel Corp., 509 S. Poplar St., LaGrange, Ind.	P P
1972	John M. Lyle, manager, design and development engineering.	Day and Night Co., P.O. Box 1234, La Puente, Calif.	P
1971	William V. McDonnell, manager of Standard and Promotional Markets Residential Division.	Honeywell Inc., 2701 Fourth Ave. S., Minneapolis, Minn.	P
1971	Harold J. Moss, vice president, engineering.	Magic Chef, Inc., 740 King Edward Ave. SE., Cleveland, Tenn.	P
1971	Robert W. Newell, vice president—product development and research engineering, Heating and Air-Conditioning Division.	Rheem Manufacturing Co., 5600 Old Greenwood Rd., Fort Smith, Ark.	P
1971	Edward A. Norman, consultant	Consolidated Industries Corp., 1513 Essex Rd., Columbus, Ohio.	P
Representing General Services Administration, Federal Supply Service:			
1972	Nicholas DeHaas, specification manager, Hardware and Construction Branch.	Standardization Division (FMSH), General Services Administration, Federal Supply Service, Washington, D.C.	GI
Representing Department of Health, Education, and Welfare (liaison representative):			
1973	Sam K. Jolly, assistant chief, Engineering Services Branch.	Department of Health, Education, and Welfare, Public Health Center, Center for Disease Control, Atlanta, Ga.	(?)

Year appointed	Name and position	Company and complete address	Classification
Representing Incinerator Institute of America: 1972	Richard P. Harper, secretary-treasurer.	Incinerator Institute of America, 2425 Wilson Blvd., Arlington, Va.	GI
Representing International Association of Plumbing and Mechanical Officials: 1967	Jack Allen	International Association of Plumbing and Mechanical Officials, 5032 Alhambra Ave., Los Angeles, Calif.	GI
Representing Mechanical Contractors Association of America, Inc.: 1952	Anthony E. Lavelle	Gorman-Lavelle Plumbing Co., 3459 E. 52d Pl., Cleveland, Ohio.	GI
1972	Alternate: William C. Abernathy	Mechanical Contractors Association of America, Inc., 5530 Wisconsin Ave., Suite 750, Washington, D.C.	
Representing National Electrical Manufacturers Association: 1964	Rawlings Brewer, assistant to vice president of engineering.	Emerson Motor Division, Emerson Electric Co., 8100 Florissant Ave., Station 2820, St. Louis, Mo.	GI
1965	Alternate: J. H. Thornbery	5059 North Diversey Blvd., Milwaukee, Wis.	
Representing National Environmental System Contractors Association: 1969	Sterling E. Apgar, Jr.	Apgar Heating-Cooling Corp., P.O. Box 125, Bound Brook, N.J.	GI
Representing National Fire Protection Association: 1962	W. L. Walls, Gases Field Service (vice chairman).	National Fire Protection Association, 470 Atlantic Ave., Boston, Mass.	GI
Representing National LP-Gas Association: 1959	Walter H. Johnson, vice president, technological services.	National LP-Gas Association, 79 W. Monroe St., Chicago, Ill.	GI
Representing Naval Facilities Engineering Command, Department of the Navy: 1972	L. E. Rogers, P.E., head, Standardization and Technical Data Branch.	Department of the Navy, Code 0434, Naval Facilities Engineering Command, 200 Stovall St., Alexandria, Va.	GI
1973	Alternate: Willis E. Strong, P.E., mechanical engineer.	Department of the Navy, Code 711.2, Naval Construction Battalion Center, Standardization and Data Management Division, Davisville, R.I.	
Representing South Building Code Congress: 1970	Willard L. Amann, operating manager, central plants.	Houston Natural Gas Corp., P.O. Box 1188, Houston, Tex.	GI
Representing Underwriters' Laboratories, Inc.: 1962	W. J. Smith, associate managing engineer, heating, air-conditioning and Refrigeration Department.	Underwriters' Laboratories, Inc., P.O. Box 247, Northbrook, Ill.	GI
1972	Alternate: S. Mazzone, managing engineer, Heating, Air-Conditioning and Refrigeration Department.	do	
Representing U.S. Bureau of Mines: 1955	Joseph Grumer, project coordinator, dust explosions.	U.S. Department of the Interior, Bureau of Mines, 4800 Forbes Ave., Pittsburgh, Pa.	GI
Representing U.S. Department of the Army (Liaison Representative): 1970	Edmund R. Lord, mechanical engineer, Food System Equipment Division.	General Equipment and Packaging Laboratory, U.S. Army Natick Laboratories, Natick, Mass.	(?)

¹ Individual member.

² Liaison with vote.

Question 6. Using the information provided by the preceding answers, give the number of members considered public interest representatives ("general interest") who serve on the Z-21 Committee as representatives of organizations whose membership, in part or whole, is made up of utility companies or gas appliance and equipment manufacturers.

Answer.—10.

Question 7. Isn't it a fair statement to say that, either by direct representation or through individuals who serve as representatives of organizations of which they are members, utility companies and gas appliance and equipment manufacturers count for over one-half (1/2) of the Z-21 Committee membership?

Answer.—No, it is not a fair statement; however, it would be factually correct to say that more than half of the individuals who serve on the Z21 Committee were appointed by member organizations which have as some portion of their membership, utility companies or gas appliance and equipment manufacturers.

Question 8. If one-half of the membership on the Z-21 Committee opposes a given standard, wouldn't that be sufficient to block its adoption by ANSI?

Answer. Yes, although it should be noted that a proposed standard can also be blocked by one person (whether or not affiliated with the proposing Committee) if that person raises objections sufficient to establish that a "consensus" cannot be reached.

Question 9. You note in your statement that a series of gas boilers and a series of gas furnaces equipped with a manufacturer's mechanical damper device is currently being tested by the AGA laboratories. Who is the manufacturer?

Answer. Flair Manufacturing Company, 600 Old Willets Path, Hauppauge, Long Island, New York 11787.

Question 10. If automatic dampers can already be tested and certified as original equipment, why have the Z-21 Committee and its applicable subcommittees spent the last two years writing such a standard?

Answer. Automatic damper devices cannot now be certified as original equipment. Only appliances incorporating such devices as a part of the appliance can presently be tested and certified. The Z21 Committee initiated the development of an automatic damper device standard as a result of a damper manufacturer's request. A Z-21 task force developed a draft standard for such devices but the standard was not accepted by the Z-21 Committee as explained in previous testimony. At the same time the Z-21 Committee instructed its furnace and boiler subcommittees to include the pertinent portions of that draft standard in the Z-21 furnace and boiler standards, as also explained in previous testimony.

Question 11. If Save-Fuel's automatic damper device was tested, both for LP and natural gas, on an upflow, downflow and a horizontal furnace, could you explain why AGA demanded that its device be tested on all brand names before certification would be granted for like furnaces?

Answer. Because furnaces differ as to control systems; the application of these control systems; the electrical components such as wire size, transformer and temperature exposure; flue gas temperatures; flue size and so forth. Any or all of these can bar upon the safety of the flue damper operation as installed on a specific appliance design and, therefore, the safety of each of the various damper-appliance combinations must be determined by test.

Question 12. You note that forced-air furnaces must have a thermal efficiency of 75% as prescribed in the applicable standard. When did that standard come into effect?

Answer. The required thermal efficiency prescribed in the present standard covering forced air furnaces was increased from 70% to 75% effective January 1, 1939.

Question 13. Approximately how many furnaces are in use that do not have a thermal efficiency of 75%?

Answer. We do not know.

Question 14. You note that the Institute of Gas Technology has estimated that the maximum saving is about 9% if there is a damper on both the furnace and the gas water heater. Now, the test you refer to was conducted by IGT for AGA, is that correct?

Answer. Yes. It was funded by A.G.A.

Question 15. Tests conducted in Germany have found the highest per cent of savings results from the vent damper keeping the house warm longer and that a much smaller per cent results from the vent damper making the furnace more efficient. Is the IGT figure(s) based upon both of these factors or only the latter?

Answer. These and other factors.

Question 16. What percentage of IGT's revenue is generated by AGA business? Answer. In calendar year 1975, A.G.A. made direct payments to the Institute of Gas Technology of \$2,457,312 for research services rendered, and transmitted funds to the U. S. Energy Research and Development Administration in the amount of \$5,156,377, representing A.G.A.'s share of jointly funded research at IGT. Attached is a copy of IGT's annual report for 1975—however, it should be noted that IGT's fiscal year ends on August 31 so the figures shown may not be comparable.

Question 17. Utility companies and gas appliance and equipment manufacturers make up what per cent of IGT's membership?

Answer. The attached report¹ of IGT lists its membership.

Question 18. During the last ten (10) years, how many fatal accidents have occurred in the United States from gas boilers or gas furnaces? (Please give the figure for the respective year.)

Answer. A.G.A. has no knowledge with respect to this question.

Question 19. Could you supply, for the record, the minutes of any meetings at which automatic dampers were discussed? (In particular, any documents or papers relating to the resubmission of the task force's standard for the second vote, which would show vote changes, data, argumentation, etc.)

Answer. Copies of the minutes¹ and other documents relating to Z-21 Committee consideration of automatic dampers are enclosed.

ADDITIONAL QUESTIONS ASKED OF MR. W. H. JOHNSON BY MR. RAY

Question 1. You note in your statement that field installation of automatic dampers was contrary to the intent of the Z-21 gas appliance standards covering accessories which can affect appliance operation. Do you mean to suggest that the Z-21 Committee's standards do not allow field installation of any part that will affect the appliance's operation?

Answer. This was not the intent of the statement made by me. The Z-21 Committee standards do not necessarily prevent installation of all parts affecting appliance operation. The determination is related to the safety aspects.

Question 2. As chairman of the task force, is it a fair statement to say that you were charged with two things: 1) to evaluate the experience with vent dampers (i.e., whether there were any bad experiences), and 2) if there were none, to proceed to develop an accessory standard.

Answer. Yes.

Question 3. Do you know how many meters there were with automatic dampers at that time?

Answer. Approximately 1500.

Question 4. Did you discover any potential problems based upon Save-Fuel's experience with automatic vent dampers?

Answer. Yes.

Question 5. Was any action taken in the task force's standard to prevent these potential problems?

Answer. Yes—provisions were developed in the draft standard to correct them.

Question 6. Did Save-Fuel cooperate fully with the task force during the development of the accessory standard?

Answer. Yes.

Question 7. Who selected the people who served on the task force?

Answer. The Chairman of the Z-21 Committee.

Question 8. Were they qualified and experienced in their field?

Answer. Very much so.

Question 9. What is your opinion of the standard that the task force developed?

Answer. It is a good standard, but needed further revision to accommodate some comments made during the Z-21 Committee letter balloting.

¹ Retained in committee files.

ADDITIONAL QUESTIONS ASKED OF MR. FRANK THORN BY MR. RAY

Question 1. How many years were you the chief gas inspector for the city of Memphis?

Answer. Approximately 12 years as chief gas inspector and 8 years as assistant chief gas inspector.

Question 2. While serving in that capacity, did there come a time when you and members of Memphis Light, Gas and Water conducted tests on an automatic damper known as Vent-O-Matic, to determine if an acceptance letter should be issued?

Answer. Yes.

Question 3. Do you recall who the people were from your department and from Memphis Light, Gas and Water who conducted the tests?

Answer. Nelson Vaughn (deceased), myself and George Watts.

Question 4. Could you explain what these tests entailed?

Answer. The tests were conducted to determine if the Vent-O-Matic could be installed safely and what, if any, installation procedures would be necessary in addition to the manufacturers' installation instructions, to determine if there would be any actual savings and under what conditions you would receive maximum savings, to determine if the device would operate safely on furnaces with fast and slow-closing valves.

Question 5. After the tests were completed, did you issue a letter of acceptance to the manufacturer of Vent-O-Matic?

Answer. Yes.

Question 6. Could you explain the letter of acceptance?

Answer. The letter required that after an installer made the necessary connection to the central heating plant and electrical connections that the unit would be inspected by the proper authority before the unit could be put in service. If the inspector found that the unit was installed properly the city gas inspector would issue a certificate of compliance. In short the acceptance letter required that each installation be inspected individually for compliance.

Question 7. Are you of the opinion that if Vent-O-Matic is installed in accordance with manufacturer and local installation instructions, it can be retrofitted safely in the field?

Answer. Yes, Vent-O-Matic and any other device which operates on the same principle, provided, however, that a safety inspection is made following installation and before the unit is put in service.

Question 8. What kind of cooperation did you get from the hierarchy of Memphis Light, Gas and Water?

Answer. The Memphis Light, Gas and Water complied with my request to accept the installation of Vent-O-Matic under conditions imposed by our office.

Question 9. Did the tests show that the installation of an automatic vent damper would reduce the homeowner's fuel consumption?

Answer. It will save some fuel in most cases, however, it will produce the highest savings when it is installed on a furnace which is located in a heated area.

Question 10. Regarding savings, does it make a difference where the furnace is located in the house?

Answer. Yes, see preceding question and answer.

Question 11. When the subcommittee's staff interviewed Professor David Meade Eastland of Mississippi State University, who also conducted tests on the Vent-O-Matic, he stated that not only should homeowners be encouraged to install them on existing furnaces, but they should be mandatory for all new furnaces. Do you agree?

Answer. No, it should not be mandatory because some people may not want the device or their furnace may not be located in an area where the unit would be beneficial.

Question 12. In your opinion, was George Watts qualified to conduct safety and fuel savings tests on Vent-O-Matic?

Answer. Yes.

Question 13. Did anyone in the hierarchy at Memphis Light, Gas and Water ever ask your opinion about Vent-O-Matic?

Answer. Yes, however, I do not recall whom.

Question 14. The American Gas Association's position is that automatic vent dampers should not be approved as an accessory because there is a possibility that local maintenance men will install them improperly. In your opinion, is this sufficient reason to bar automatic dampers as retrofit units?

Answer. No, providing a safety inspection is made before the unit is put in operation.

Note: An automatic gas valve may be installed in the field by an unauthorized person. I am of the opinion that if a gas valve is improperly installed an explosion could result. Why discriminate against vent dampers?

Question 15. What about the possibility of the homeowner attempting to install the damper himself?

Answer. That possibility always exists as it does with many other dangerous devices, which are presently on the market. For example, looking at a furnace, the homeowner could install the combustion chamber, the gas valve, the safety pilot or the limit control (i.e. unit which controls the temperature of the furnaces to keep it from over heating). If installed improperly each of these present a real danger. I would, of course, encourage the homeowner to have all of these devices installed by a qualified installer.

ADDITIONAL QUESTIONS ASKED OF GEORGE G. WATTS BY MR. RAY

Question 1. According to your testimony, the test procedures used in Memphis were developed by the National Bureau of Standards. Is that correct?

Answer. One test on two houses was according to the National Bureau of Standards.

Question 2. The six dwellings referred to in your statement, did any have furnaces with the so-called "slow-opening" or "modulating" valve?

Answer. The six dwellings did have furnaces equipped with "slow-closing" valves.

Question 3. Did your tests show that Vent-O-Matic would operate safely on such furnaces?

Answer. The Vent-O-Matic did operate safely on all tests conducted by me.

Question 4. You also state that you had five automatic dampers installed on heating units in the laboratory and training school at Memphis Light, Gas and Water. Taking all of the furnaces on which you tested Vent-O-Matic, were they all manufactured by the same company or by different companies?

Answer. Each furnace that the automatic dampers were installed on in training school were manufactured by a separate company.

Question 5. Do you recall the name(s) of the manufacturer(s)?

Answer. Bryant, Muller, Coloman, Empire and Lennox.

Question 6. Did Vent-O-Matic function properly on all of these furnaces?

Answer. Yes.

Question 7. In other words, the fact that the furnace is manufactured by Mueller or Bryant makes no difference.

Answer. No.

ADDITIONAL QUESTIONS ASKED OF NEUMON TAYLOR BY MR. RAY

Question 1. Mr. Taylor, how long have you been manager of Memphis Light, Gas and Water Division?

Answer. One year, four months.

Question 2. What was your position at Memphis Light, Gas and Water during the period that Mr. George Watts conducted tests on Vent-O-Matic?

Answer. Director—Gas Division.

Question 3. Did Mr. Watts come under your supervision?

Answer. No.

Question 4. When did you first gain knowledge of Vent-O-Matic?

Answer. January, 1972.

Question 5. Were you aware that Mr. Watts, along with the City Gas Inspector's Office, was conducting safety and fuel savings tests on Vent-O-Matic?

Answer. No.

Question 6. During the period the tests were being conducted, did you ever discuss them with Mr. Watts or Mr. Thorn?

Answer. No.

Question 7. You testified on March 22 regarding the Memphis Light, Gas and Water position paper that "What [MLGW] were trying to do here is let our customers know exactly where we stood, that it was not a nationally approved device, that we did not condemn it nor did we approve it ourselves but if they want to put it in and it is properly and safely installed, we will accept it."

Question A. The Chief Gas Inspector accepted Vent-O-Matic for installation in the City of Memphis on January 7, 1970. Your position paper was not issued until January 31, 1973, some three years later. Why did it take three years for Memphis Light, Gas and Water to inform its customers about the potential hazards of such a device and where it stood regarding installation of the device?

Answer. In 1972, Mr. Woolfolk requested that the Division release to the newspaper results of the various tests that were conducted and endorse the device to the public. This, in essence, would have put the Division in the position of sponsoring Mr. Woolfolk's product. This violated a long standing policy (since the Division's inception) of not merchandising any appliances or competing with private contractors in the installation of household equipment.

Question B. If Memphis Light, Gas and Water will accept automatic vent dampers when they are "properly and safely installed," why didn't the position paper contain a statement to that effect?

Answer. The position paper maintained the Division's neutrality and, while in some minds it may have exceeded our avowed purpose, it was thought necessary at the time to avoid any further possibility that the Division might be used to promote a particular device.

Question 8. Do you believe that the installation of a vent damper can reduce the homeowner's fuel consumption?

Answer. On some installations.

Question 9. How many customers does Memphis Light, Gas and Water have with gas furnaces?

Answer. 180,000 heated homes.¹

Question 10. Approximately how many of these are located in a heated area?

Answer. 20,000 to 25,000.

Question 11. Do you serve on an AGA committee?

Answer. Yes.

Question 12. How many other employees at Memphis Light, Gas and Water serve on AGA committees? (Please give the names of the employees and the committee they serve on.)

Answer. Memphis Light, Gas and Water Division Employees Serving On AGA Committees:

Mark McAllister, Automotive and Mobile Equipment Committee; John M. Timmons, Internal Auditing Committee; Eugene Lambert, Customer Activities Committee; Henry Martin, Customer Activities Committee; Joe F. Xiques, Customer Activities Committee; Larry Papasan, Plastic Pipe Task Committee; Ira Stanfil, Liquefied Natural Gas Committee; Frank Harty, Credit Committee; Dennis Smith, General Accounting Committee; Jack Hawkins, Materials Management Committee; W. B. Bell, Claims Committee; and Joe Powell, Methods and Computer Services Committee.

QUESTIONS BY SENATOR STROM THURMOND SUBMITTED TO CHARLES E. WOOLFOLK

Question 1. You mentioned that testing laboratories like AGA and UL label themselves as non-profit organizations. Yet you said they are really in the business of making money. Do they make money as an Association or is it channeled back to individual companies?

Answer. I think they make money as an Association. I also feel that, for a non-profit making organization, the top officials make extremely high salaries.

Question 2. What do you think of the present system of industrial standards and certification programs?

Answer. In the main, I support industrial standards and certification programs. Certainly, we cannot live in a modern world without them. However, we must also recognize that standardization and certification can easily be used to cripple competition, and all too often, they are used exactly for that purpose. For example, in 1926 when the AGA was formed, I certainly think its stated purpose was laudatory; however, over the years it has grown into a multi-

¹ Floor Furnaces—21,667
Vented and unvented heaters—16,000
Wall Heaters—4,667
Boilers—3,833
Furnaces—Combustion Air Outside—118,333
Furnaces—Combustion Air Inside—15,666

million dollar non-profit organization itself, and those who control its standards-development committees and its testing laboratories are more interested in protecting their interests than they are with insuring safe, economical products for the nation.

Question 3. How would you improve industrial standards and certification programs?

Answer. Senator, there is really nothing an individual can do. Only Congress, through legislation, can improve the process by which standards are to be developed and products certified. That is why I have worked so hard to bring my case before Congress.

Question 4. What should Congress do to improve industrial standards and certification programs?

Answer. I understand that some members of the Federal Trade Commission question whether it has the authority to bring suits against non-profit making organizations. If this is true, I think the most important thing is for Congress to put some teeth into our antitrust laws which would insure that such organizations conduct their activities within the free enterprise system. Certainly, an organization which has the power to decide who will or will not do business in this country should not be exempt from the reach of our antitrust laws. More specifically, I would hope that Congress would pass some kind of legislation which would set forth a national policy towards standards and certification programs. At a minimum, this legislation should include uniform rules of procedure, right of appeal, notice to all interested parties of standardization activities, right of participation in the standard-development process, standards-development committees that are not dominated by one or two interests, and a national accreditation program for testing and certification laboratories (which would introduce some competition into a market which is presently dominated by a few laboratories).



