TESTIMONY OF THE

NATIONAL FIRE PREVENTION AND CONTROL ADMINISTRATION

AND

THE CENTER FOR FIRE RESEARCH

NATIONAL BUREAU OF STANDARDS

BEFORE THE

HOUSE SCIENCE AND TECHNOLOGY COMMITTEE

SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY

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Mr. Chairman, I am pleased to appear before the Committee to review progress to date under the Federal Fire Prevention and Control Act of 1974 and to support the extension of authorization for appropriations under that Act for Fiscal Years 1979 and 1980. We also have requested that the name of the agency be changed from the National Fire Prevention and Control Administration (NFPCA) to the United States Fire Administration.

With me at the table today are Philip S. Schaenman , Associate Administrator of the National Fire Data Center; David M. McCormack, Superintendent of the National Fire Academy; and Frederic B. Clarke, Acting Director of the Center for Fire Research at the National Bureau of Standards.

The programs authorized by the Fire Act have been organized within five major divisions: the Fire Data Center, the Fire Academy, the Center for Fire Research, the Public Education Office and the Fire Safety and Research Office. The gentleman with me will present some details of the first three program areas. I will provide a general overview and some details of the latter two program areas. We have taken this approach, recognizing that the Committee's time is very limited and that there are many organizations and individuals eager to address the Committee on the fire program. You will, of course, be hearing from a few of them today and next week. In the interest of time, we will summarize the statements which have been provided to the Committee.

With your permission, I would like to begin with a brief slide/tape presentation which provides an overview of our national tragedy, fire, and of our programs in progress.

(SLIDE/TAPE PRESENTATION)

ORGANIZATION

The Congress, through the Fire Act, envisioned a comprehensive Federal program working in cooperation with and in support of state and local officials and private organizations. I believe that we have followed that direction to the best of our ability.

We continue to have a serious fire problem in America. In the past 12 hours, 10 persons have died from fire -- several victims were probably children. At least 423 others were injured; some will be scarred and disfigured for life, while others escaped with minor injuries.

Every day, day after day, $11 million in property goes up in flames across America. That's over $4 billion a year. When all the costs incurred by this Nation due to fire are tallied, the figure exceeds $13 billion annually.

America is still burning.

The homes we live in, the clothes we wear, the chairs we sit in and the buildings we work in -- all can burn. About two-thirds of America's fire deaths occur in the victims' homes, by ones and twos, most often at night.

The men and women who respond to the 2.6 million reported fires each year aren't immune to the hazards of fire, either. Firefighters are members of America's most hazardous profession. Their death rate is staggering. More than half of all reported fire injuries are suffered by firefighters.

Fire is a "Fact of Life" in America.

The National Fire Prevention and Control Administration, an agency of the U.S. Department of Commerce, is now three years old and is providing a Federal focus for America's fire problem and the major issues surrounding it:

1. The need for safer homes through education and technology.
2. The need to protect firefighters from death and injury.
3. The need for comprehensive fire prevention and control planning on all levels of government.
4. The need to conquer arson.
5. The need for a uniform, broad-based pool of data with which to identify America's fire problem.
6. The need for improved education and training for the Nation's fire protection community.
7. The need for a basic understanding of fire and its effects.
8. The need to provide assistance to state and local governments.
9. The need to provide a focus for the Federal fire community.

Yet, fire remains a state and local problem. The National Fire Administration's role is to support and reinforce state and local efforts for fire prevention and control.

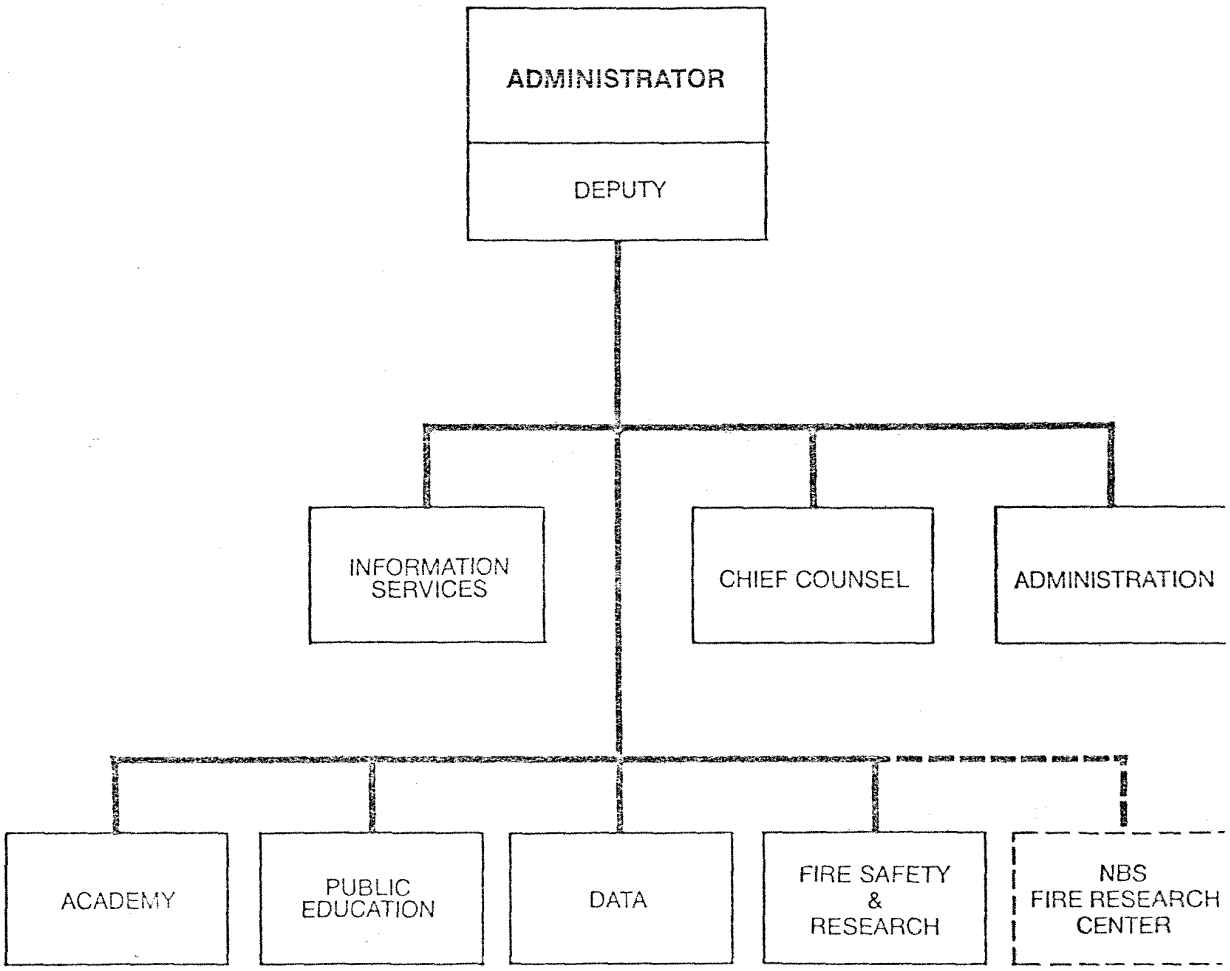
Helping improve the effectiveness of state and local efforts is the major thrust of the NFPCA. Since the agency began, intensive work has been conducted to identify the priority needs on the state and local levels; develop new and improved fire prevention and control techniques; test those techniques; and provide leadership, incentives and methods to get those techniques into use at state and local levels.

To carry out this work, the National Fire Administration has four divisions: the National Fire Data Center, the National Fire Safety and Research Office, the Public Education Office and the National Academy for Fire Prevention and Control. The programs of the Center for Fire Research (CF), a branch of the Commerce Department's National Bureau of Standards, are linked to those of the National Fire Administration (See Figure 1, Organization Chart). Since resolving the issues surrounding fire requires a broad-based attack, the NFPCA confronts this task as an interdisciplinary team, with each unit contributing its unique resources.

To conduct the programs of the NFPCA, a budget of $13.8 million was appropriated for Fiscal Year 1977. Figures 2 and 3 illustrate the allocation of these funds.

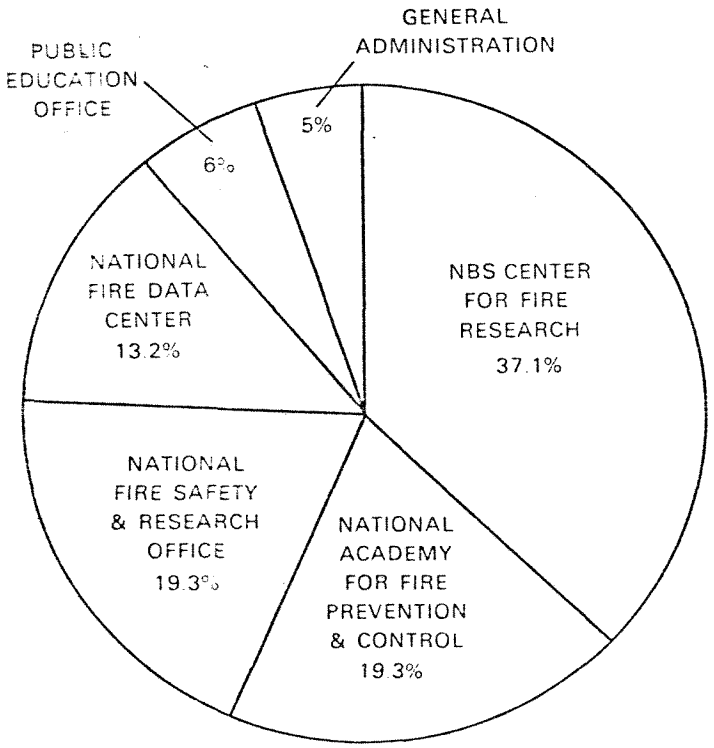
By December 1977, the Administration staff numbered 92 full-time employees. The staff was bolstered by eight individuals during 1977 under the Intergovernmental Personnel Act (IPA), which provides for the temporary exchange of local government employees to the Federal government. The IPA's, experts in various areas in which the Administration is working, represented fire departments and other organizations from across the Nation.

Figure 1
U.S. Department of Commerce
National Fire Prevention and Control Administration

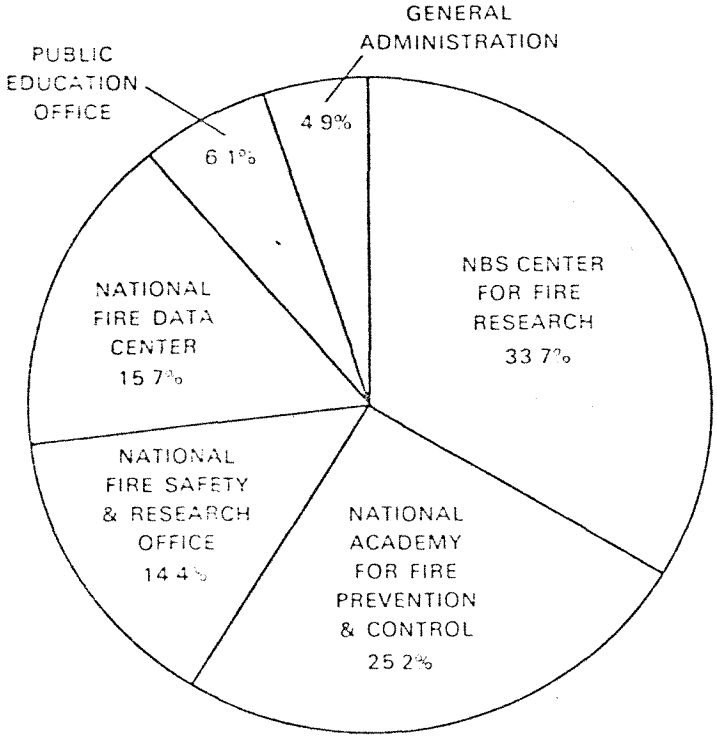


Financial Obligation

Figure 2



FY 1977
($12,339,000)



FY 1978
($13,850,000)

Figure 3

Financial Resources Obligated According to Act Sections

Fiscal Year 1978	Millions
SECTION	
7 ACADEMY	3.486
6 PUBLIC EDUCATION	.846
9 DATA CENTER	2.169
TECHNOLOGY & PLANNING 8 Technology Development 10 Master Planning 12 Code Review 13 Fire Safety Effectiveness Statements	2.003
18 CENTER FOR FIRE RESEARCH	4.664
ADMINISTRATION, COUNSEL, PUBLIC INFORMATION 11 Claims 14 Annual Conference 15 Public Safety Awards 16 Annual Report	.682

Fiscal Year 1977	Millions
SECTION	
7 ACADEMY	2.376
Academy Site Purchase	2.85
6 PUBLIC EDUCATION	.742
9 DATA CENTER	1.638
TECHNOLOGY & PLANNING 8 Technology Development 10 Master Planning 12 Code Review 13 Fire Safety Effectiveness Statements	2.383
18 CENTER FOR FIRE RESEARCH	4.578
ADMINISTRATION, COUNSEL, PUBLIC INFORMATION 11 Claims 14 Annual Conference 15 Public Safety Awards 16 Annual Report	.622

ASSISTANCE TO STATE AND LOCAL GOVERNMENTS

The National Fire Administration cannot act alone to reduce America's fire loss. Nor can states and communities solve the problem independently. Only through a cooperative effort involving Federal support of state and local efforts can a better understanding of the fire problem and a reduction of fire losses be achieved.

During 1977, the Administration targeted several assistance programs at states, benefiting local governments as well. Helping states build their capacity to develop and deliver programs was a major Administration-wide goal.

Four "grants-to-states" programs are in various stages of implementation by NFPCA:

- PDAP---Policy Development Assistance Program;
- APAP---Academy Planning Assistance Program;
- NFIRS---National Fire Incident Reporting System;
- PEAP---Public Education Assistance Program.

These "grants-to-states" are intended to assist and reinforce the efforts of local fire personnel, as well as state level agencies. The more than two million local fire personnel are recognized as the primary manpower for reducing fire loss. For this reason, local fire service participation and involvement of local interest groups are vital to these state grant programs.

The planning chart (figure 4) illustrates the nine basic steps in the planning process for each state-oriented Administration grant. Each of the four programs discussed here refers to that chart.

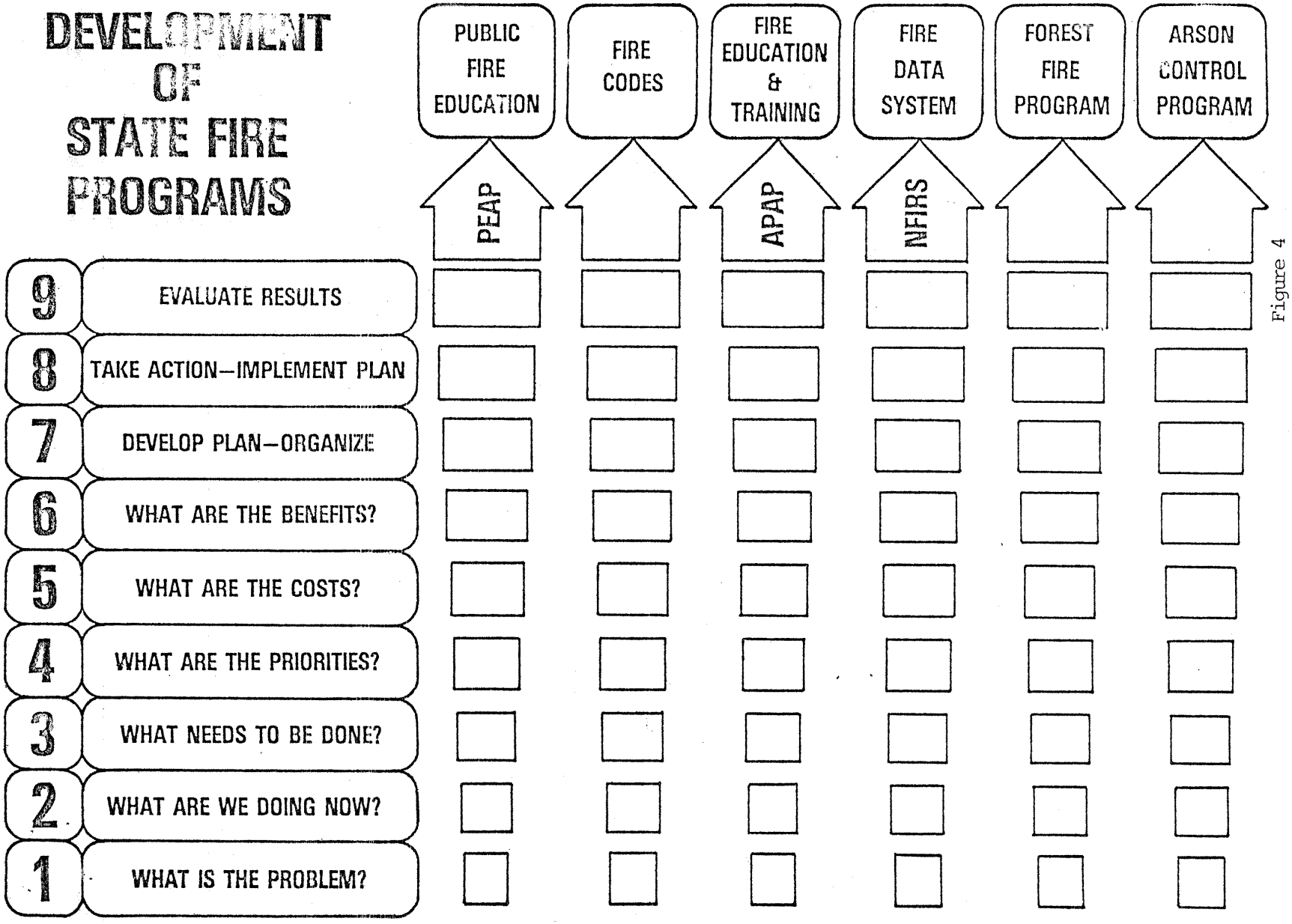

DEVELOPMENT OF STATE FIRE PROGRAMS
PUBLIC FIRE EDUCATION
FIRE CODES
FIRE EDUCATION & TRAINING
FIRE DATA SYSTEM
FOREST FIRE PROGRAM
ARSON CONTROL PROGRAM
PEAP
APAP
NFIRS
9 EVALUATE RESULTS
8 TAKE ACTION—IMPLEMENT PLAN
7 DEVELOP PLAN—ORGANIZE
6 WHAT ARE THE BENEFITS?
5 WHAT ARE THE COSTS?
4 WHAT ARE THE PRIORITIES?
3 WHAT NEEDS TO BE DONE?
2 WHAT ARE WE DOING NOW?
1 WHAT IS THE PROBLEM?

Figure 4

The fire prevention and control master planning programs are designed for local governments. However, the principles and techniques of master planning can be applied to state governments as well. By the end of 1977, a program to transfer these concepts to the state level had reached the final planning stages. Under the Policy Development Assistance Program (PDAP), three or four grants will be issued in early 1978. They will test the planning approach as applied to the delivery of state government fire prevention and control services.

Under a PDAP grant, a state will demonstrate how it can analyze its priority needs and integrate the fire prevention and control services of state agencies into a coordinated, well-balances attack on the state's fire problem. These projects are expected to result in model methods which other states can adapt to their needs.

Steps one through seven of the planning process would be completed under PDAP. The final two steps are the responsibility of the states.

Assisting states develop a systematic educational delivery system is the reason behind APAP -- the Academy Planning Assistance Program. This system in each state will also become a vital part of the National Fire Academy's outreach effort.

APAP focuses on fire education and training programs through a two-part grant program. The "organizational design" phase supports state identification and analysis of existing state and local institutions, organizations and agencies able to deliver fire training and education. In addition, states select the responsible entity for planning statewide

fire service education and training. These activities encompass steps one and two of the planning process.

In the second phase of APAP, the Administration supports a state's effort to develop a comprehensive Five-Year Plan for fire education and training, outlined in steps three through seven.

Thus far, APAP grants have been issued to 26 state.* The Administration expects the APAP program to continue until all interested states and territories have developed their Five-Year Plans for fire education and planning.

The National Fire Incident Reporting System (NFIRS) is another significant Administration effort to assist states and local communities. As under PEAP and APAP, the NFIRS program encourages participation by state interest groups.

The NFIRS assistance program helps states through all nine of the planning steps. However, most of the resources are normally invested in step eight: "Take Action" (implementing the system). The Administration also provides substantial technical assistance, along with financial support for statewide data collection.

*Participating states are: Alabama, Alaska, Arkansas, Arizona, California, Connecticut, Florida, Georgia, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Missouri, Nevada, New Hampshire, New York, North Dakota, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Virginia, Washington and Wyoming.

The Public Education Office has seen that public education programs can result in a dramatic, measurable impact on fire loss. To assist states in establishing and expanding their public education efforts, PEO designed the Public Education Assistance Program or PEAP.

Under PEAP, the Administration helps build a state's capacity to provide local fire educators with access to programs, materials and technical assistance for planning, implementing and evaluating targeted community fire education programs The resulting state program should achieve three objectives:

- To make a state public fire education program part of the state fire structure;
- To provide local community educators with fire education program information and materials;
- To develop the ability of communities to plan, implement and evaluate effective fire education programs.

As with other state-targeted NFPCA grants, PEAP provides both financial and technical assistance, and is designed to involve a variety of interest groups in the program. The majority of funds allocated for PEAP are aimed at steps eight and nine of the planning process: implementation and evaluation.

Four states -- California, Delaware, Illinois and Oregon — are now pilot testing PEAP. At least two other states will be added in early 1978.

RESIDENTIAL FIRE SAFETY

Americans who die from fire most often succumb in their own homes. Most fatal residential fires claim only one or two lives, causing only momentary local interest.

Tragic fires, like the pre-dawn dormitory fire in Rhode Island, December 13, 1977, in which seven coeds perished, receive national notoriety. Yet, this and other major fires do not represent this nation's major fire problem: the residential fire. About two-thirds of all U.S. fire deaths occur when we feel the safest: at home.

Making American homes safer and Americans more fire safe is a major undertaking of the National Fire Administration and involves efforts in several program areas, including the National Bureau of Standard's Center for Fire Research. Education programs are in progress to make Americans more conscious of fire, and technological projects are underway to make American's homes safer.

For the past three years, the Public Education Office (PEO) has concentrated on reducing fire losses through tested public fire education programs. Two such programs -- smoke detectors and home safety surveys -- are aimed at making homes safer.

Smoke detectors are the most significant technological device available to protect American homes from fire. Data indicates that properly installed and maintained smoke detectors can reduce loss of lives from fire by 40%-80%. The National Fire Safety and Research Office is conducting major programs in residential fire detection and suppression

devices. From June 1976 to June 1977, researchers have investigated 73 fatal residential fires where there were a total of 114 deaths and 119 injuries. After detailed analysis they concluded that * 71% of the deaths, 85% of the injuries, and 72% of property lost would have been prevented by the proper use of residential detectors. Another 17% of deaths and 7% of injuries would probably have been prevented. Astounding results for such minor investment.* These devices, coupled with a practiced home escape plan, are a family's best protection against fire's effects.

With the growth of competitively-priced smoke detectors came demands from the public and fire service for up-to-date information on types of detectors, installation and maintenance. From state and community governments came demands for information and legislation which could make smoke detector installation mandatory. To meet these information needs, PEO began an effective nationwide "smoke detector campaign."

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*Further, results of the research conclude that, had residential suppression systems been installed, 87% of the deaths, 96% of the injuries and 88% of property loss would not have occurred, and that another 5% and 1%, respectively, would probably have been prevented. Totals of 92% and 97% probable reduction in home fire deaths and injuries would be expected with systems that engineers believe can be built into new homes for less than $500 and nearly eliminate the need for proper human reaction to a fire.

For the consumer, a general fact sheet, "Smoke Detectors Save Lives," and a pamphlet, "Wake Up! Smoke detectors can Save Your Life If…," were released in late 1976. During 1977, PEO distributed more than 69,000 copies of these publications, primarily to private citizens. More than 300 local organizations requested negatives to "Wake Up!" for local reprinting. Other organizations also joined the NFPCA in distributing the "Wake Up!" brochure which was developed by PEO, CFR and the Consumer Product Safety Commission. As a public service, Sears, Roebuck & Company distributed more than 4.1 million copies through 121 local fire departments. The Hartford Insurance Company distributed approximately 175,000 copies through its independent insurance agents. The brochures have reached an estimated 5 million Americans during 1977.

To help local fire departments educate their communities about smoke detectors, the Administration published a five-volume series of smoke detector manuals during 1977. One of the manuals, Smoke Detector Resource Catalog, was mailed to over 30,000 fire departments. Coordinated by PEO, the manuals included input for each NFPCA unit. The National Fire Safety and Research Office and Center for Fire Research contributed substantially to separate volumes. The manuals are:

Smoke Detector Resource Catalog, including a fact sheet on smoke detectors, guides to finding materials such as films and brochures, case histories of successful programs, a legislative overview, and techniques with which to evaluate programs;

Smoke Detectors: Moving the Public, a two-part manual on generating support through community organizations and the media;

Smoke Detector Technology, a detailed description of smoke detector operation, selection, installation and maintenance;

Smoke Detectors and Legislation, an in-depth review of the current status of state and local smoke detector legislation; and

Smoke Detector Training, including practical applications from Technology and a suggested curriculum for training members of the fire prevention community to present smoke detector education to the public.

As well as showing fire department personnel how to develop, conduct and evaluate smoke detector programs, the manuals are being used to train state and local fire educators who teach both the fire service and the public. During 1977, the NFPCA developed, pilot tested and launched a year-long smoke detector training program. In September and October 1977, 976 smoke detector specialists from 238 communities were trained. They, in turn, were scheduled to train 16,800 local fire personnel. By the end of 1978, approximately 4,500 smoke detector specialists will be trained across the United States; it is anticipated that they will teach another 72,000 local representatives to work in their communities.

Although smoke detectors, coupled with home escape plans, offer significant life-saving potential, they are not the total answer to residential fire safety. A home inspection, or home "survey," program in Edmonds, Washington, was one of many successful fire education programs identified by PEO. The Edmonds program has resulted in a 67% reduction in residential fire loss in one year. Under a grant from PEO, the Edmonds

Fire Department developed a training package for other communities to use in conducting similar programs. In the summer of 1977, the training package was tested in Edmonds with senior citizen "students."

That program was so well received that PEO convinced the National Council on Aging and ACTION/Older American Volunteer Program to adapt it for use by their members. In mid-October 1977, PEO and the National Council on Aging sponsored a pilot training course for senior citizen home surveyors in Huntington, West Virginia. Based on this successful pilot, similar programs are in progress in San Antonio and Orange, Texas, Toledo, Ohio; Bozeman, Montana, and Syracuse, New York. Several other areas are considering the program by the end of 1977.

The Edmonds Fire Department is distributing the training package nationally. By the end of 1977, about 100 fire departments had begun using it as a prelude to conducting their own home inspection programs.

Making American homes more fire safe is not an easy task. With two-thirds of all reported fire deaths occurring in the home, the NFPCA now has several technical studies in progress through the National Fire Safety and Research Office (NFSRO) and CFR. The goal: increased, affordable fire safety in the American home.

Smoke detectors were studied under a major contract with NFSRO by the Aerospace Corporation. The objectives of the study include: identifying manufacturers of residential detectors and noting characteristics of currently available models; estimating current and future sales markets; and, determining the level of consumer awareness and acceptance. The study indicated that 33 million detectors are in place in 16 million American homes.

Home fire suppression systems, particularly those with a remote alarm to alert the fire department and the occupants, offer major advantages. The fire can be contained more readily in its room of origin, limiting damage and making firefighting "safer" through earlier alert.

During 1977, six major suppression-related studies were conducted by public and private organizations under NFSRO grants. Based on these studies, the NFSRO concluded that it is possible to design an effective, affordable fire suppression system for new homes.

One of the studies, conducted by the Johns Hopkins University/Applied Physics Laboratory, assessed the potential impact of fire protection systems.

Based on another study, Factory Mutual Research Corporation delivered a report on a performance standard for low-cost residential sprinkler systems. Based on this and other studies, the National Fire Protection Association is now reviewing its residential sprinkler standard.

Sprinkler systems were also studies by CFR. In 1977, tests were conducted to study their performance and use of light-duty support systems for sprinkler piping. Tests were also completed on the performance of sprinklers in health care facilities.

Smoke detectors were also studied by CFR, including the development of performance test methods, siting criteria, and the work which lead to the Underwriters Laboratories' adoption of a new smoke detector performance standard.

The combination of residential furnishings and smoking materials accounts for 27% of home fire deaths, according to a 1976 study of the

14 most common fire death scenarios conducted by CFR and the National Fire Protection Association (NFPA). This created an interest in upholstered furniture. During 1977, a proposed cigarette test for upholstered furniture, developed for the Consumer Product Safety Commission, was submitted to the NFPA for review.

In other CFR efforts to make American homes safer, the flammability of insulation used in remodeling attics, walls and basements was studied. Fire growth in rooms, the role of furnishings in room fire development, and the fire endurance levels of basement ceiling construction and interior finishes of mobile homes were also investigated.

Finally, the Fire Administration has cooperated with the National Science Foundation (NSF) in the interest of increased residential fire safety. NSF, through its Research Applied to National Needs (RANN) program has funded fire research projects for a number of years. Since its beginning, NFSRO has worked closely with this program. This working relationship was strengthened in December 1977 when the Foundation transferred administrative and programmatic responsibility for six ongoing projects to the National Fire Administration. Each of these projects — on fire detection technology, low-cost residential sprinkler systems, scheduling fire service personnel, the effectiveness of municipal fire protection, equipment technology and fire alarm assignments systems -- has a bearing on residential fire safety.

FIREFIGHTER SAFETY

Firefighting is America's most hazardous profession.

The statistics are grim:

- Half of all reported injuries from fires attended by the fire

service are suffered by firefighters.

- In the last 10 years, firefighters have averaged an annual 88 deaths per 100,000, compared with the 58 deaths for every 100,000 policemen.
- In a study of 101 line-of-duty firefighter deaths, 45 were caused by heart disease, three times the rate of the second largest cause of death.

The hazards of other occupations -- mining and police work -- receive far more public attention than those threatening firefighters. Increased occupational safety for firefighters is urgently needed, both for the protection of the firefighters themselves and for increased firefighting effectiveness.

To better protect America's firefighters, the NFPCA conducted programs designed to provide better protective clothing and equipment, to improve the physical fitness of firefighters, and to reduce firefighter burn injuries.

Americans may think firefighters are well protected when they enter a burning building. All too often they are not. Their clothing is not as resistant to fire as it should be: some helmets actually melt and some turnout coats and pants can melt and burn. The weight and bulkiness of firefighters' clothing and equipment can severely limit mobility and contribute to the strain on the firefighter, whose body is already working under the most severe of environments.

The National Fire Safety and Research Office began a major jointly-funded program with the National Aeronautics and Space Administration (NASA) called Project FIRES (Firefighters' Integrated Response Equipment System),

for the design and development of an integrated protective system or "envelope." The thrust of the program is to use modern technology, often the result of NASA's space technology, in a systems approach for providing improved clothing and equipment for firefighters. This cohesive approach contrasts sharply with the "piecemeal" approach of the past.

Understanding the fire environment within which a firefighter works is critical to establishing a protective envelope. To understand the occupational hazards of firefighting, NFSRO sponsored a study which resulted in the report "The Thermal Environment during Structural Fires." This study provided an onsite appraisal of the thermal exposure fire-fighters face. The results, that firefighters endure mostly radiative heat, not convective, will be used in designing improved protective equipment.

In another project, the air contaminants of actual structural fires were sampled and measured. Knowing the toxic contaminants in the fire environment will help define the respiratory protection requirements of the firefighters' protection envelope, as well as contribute data on fire's deadly effects.

The NFSRO, in close cooperation with the Nation's fire service, has also placed emphasis on developing new performance criteria upon which equipment and clothing can be designed and manufactured. Helmets were one of the first pieces of equipment to be studied critically. In August 1977, "Model Performance Criteria for Structural Firefighters' Helmets" was published. The research for the criteria was conducted by the Institute for Applied Technology, NBS, which published a supporting study,

"Considerations in Establishing Performance Criteria for Structural Firefighters' Helmets."

Firefighting is strenuous work, requiring above average strength and endurance. Heart disease causes a high percentage of firefighter line-of-duty deaths. To meet their job demands and guard against heart disease, firefighters must be physically fit.

The Administration's work in the area of firefighter physical fitness was discussed in two reports published in 1977. "Development of a Job-Related Physical Performance Examination for Firefighters" highlights results of the first study to measure in detail the physiological effects of firefighting on the heart, lungs, and muscles. The report concludes that the successful completion of firefighting tasks requires a physical performance profile "reflecting youth," and that two-thirds of all firefighters do not meet this profile. The study was conducted by the University of Maryland under a grant from the NFSRO.

Regular exercise can be the most effective method for remaining fit. More than 1,000 fire departments respond to a study conducted by the International Association of Fire Chiefs Foundation for the NFPCA's Data Center to identify fire departments with on-going physical fitness programs, and to recommend which types of programs seem to succeed. Only 18% reported some type of active physical fitness program. Many of these programs are short-lived. Another 11% reported they had discontinued their physical fitness program. The study results, published as "Fire Service Physical Fitness Programs," concluded that the fire service must begin to upgrade its in-service physical fitness training, and offers suggestions on how to do so.

Physical fitness was also spotlighted in the Fourth Symposium on Occupational Health and Hazards of the Fire Service, held in April 1977, and co-sponsored by the NFPCA and the International Association of Fire Fighters' John P. Redmond Fund, a research foundation.

Firefighters compose one of the highest risk groups for burn or inhalation injuries. Correct, prompt emergency burn care treatment can minimize the seriousness of these injuries.

To provide information to the fire service and other fire educators, the Public Education Office (PEO), with the International Association of Fire Fighters (IAFF) held a burn prevention Symposium in mid-1977. It brought together experts from fire service and burn care profession to draft a document on simple emergency burn care procedures and successful fire/burn prevention programs. The Symposium proceedings will be disseminated in early 1978 through the IAFF and PEO.

PLANNIING FOR FIRE SAFETY

The best use of public service dollars, personnel, equipment and facilities is a universal concern in today's economic climate. In an area such as fire protection, which brings together public and private officials and organizations, comprehensive planning can be the key to success. Planning for the effective use of fire prevention and control resources is a local responsibility, since local needs and resources -- and risks -- differ from community to community.

Although the problems differ, the need for comprehensive Fire Prevention and Control Master Planning is universal. Fire protection master planning is a systematic process for determining how much fire risk a community is willing to assume, how much fire protection it can

provide and alternative approaches for providing that protection. It is the development of a total community plan by that community. It looks at today's fire situation, anticipates tomorrow's problems, and designs alternative plans with costs and benefits to meet fire protection needs. Based on a master plan, rational decisions for using public and private resources can be made.

The National Fire Administration's goal in master planning is to provide leaders on all levels of government with the tools needed for comprehensive fire prevention and control planning. At a time when local governments are struggling to maintain or improve the quality of public services, the NFPCA's master planning tools offer a valuable resource.

The Urban Guide for Fire Prevention and Control Master Planning was officially released on March 29, 1977. The Guide is a step-by-step manual that outlines the procedures for planning and implementing fire protection master plans for urban communities. Since its release, more than 5,000 copies of the Guide have been distributed and at least 150 communities throughout the nation have begun master planning.

The planning process was originally developed under grants to the City of Los Angeles and Mountain View, California fire departments. Prior to the release of the Guide, 13 other communities* pilot tested and reviewed the planning process, at no cost to NFPCA other than technical assistance.

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*Validation communities are Azusa, CA; Covina, CA; Edmonds, WA; Fayetteville, AK; Fremont, CA; Ketchum, ID; Richardson, TX; Springdale, AK; Springfield, IL; Tulsa, OK; Virginia Beach, VA; Washington Township, Gloucester County, NJ; and West Covina, CA.

The International City Management Association (ICMA) and representatives of communities near the validation cities have given a "third party" assessment of the Guide's usefulness. The ICMA formed teams of city administrators who visited the pilot communities to determine the transferability of master planning. Their conclusion: overwhelming support for the master planning concept and the Guide. ICMA also observed that "Master planning's total 're-think' about community fire protection tends to foster a more equitable distribution of responsibilities and cost between the public and private sectors."

While the Urban Guide is a comprehensive document for use in a complex environment such as a large city or metropolitan area, the Basic Guide for Fire Prevention and Control Master Planning, complete in July 1977, is a simplified version of the key concepts and procedures of master planning. Smaller communities and rural areas are targets for the Basic Guide, developed for NFPCA by the Oklahoma State Fire Marshal's Office.

Fourteen communities* around the country validated the original Basic Guide. The communities include counties and regions, and both incorporated and unincorporated areas. Some 30 other rural and small communities are currently field testing the revised Basic Guide.

Training in the use of master planning techniques was an important NFPCA activity in 1977. The National Fire Academy is responsible for this outreach aspect of master planning.

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*Validation communities are Benton County, AR; Clarendon County, SC, Devils Lake, ND; Flagstaff, AZ; Forest Grove, OR; Godfrey, IL; Longmont Fire Protection District, CO; Madeira Beach, FL; Northwest Missouri Regional Council of Governments, MO; Princeton, MA; Seymour, TN; South Charleston, OH; Spring Lake Fire Protection District, CA; and Williamsburg, PA.

The National fire Academy developed two master planning courses during 1977. The first, "Overview of Master Planning," introduces course participants to the purpose, language, procedures, and costs and benefits of master planning. In 1977, 980 local fire service personnel and local government officials in 12 states attended this course.

The second course, "Preparation for Master Planning," readies local government planning team leaders to carry out their roles in master planning. The method of training these leaders is a "hands-on" workshop simulating a planning team environment. The course was pilot tested in California in June. By late 1977, student nominations for cities committed to master planning were arriving at NFPCA. These nominations will determine interest centers for selecting locations for course delivery during 1978.

Meanwhile, the Public Education Office continued to train local fire educators in systematic planning techniques for public fire education. Effective education programs, designed for specific target audiences, are the goal of this planning process. During 1977, local fire educators participated in regional public education planning programs held in 11 states. By the end of 1977, Public Fire Education Planning, a step-by-step manual for fire educators, reached the final stages of development.

ARSON

The Symphony Road neighborhood in Boston is known for two primary characteristics: its closeness to the Boston Symphony and arson. In other cities across the Nation, from Seattle to the South Bronx, arson has become an epidemic.

In Ohio and California, the first states to join the NFPCA's National Fire Incident Reporting System, incendiary and suspicious fires are the leading cause of property loss in buildings. These fires cause about 20% of the known residential dollar loss and almost 36% of the known losses in non-residential buildings in those states. An estimated 25% of all fires in the Nation today are the work of the arsonist.

Arson, however, is more than an issue of tremendous scope. It is also an issue of complexity. Criminal involvement, human behavior, social change, business and economic trends and the nature of fire contribute to arson's attack on the cities. The arsonists' motives range from those arising from mental disturbance to arson for profit. Finally, the responsibility for stopping arson does not rest solely with the fire service nor the police. Rather, arson is a crime that crosses organizational barriers and requires broadbased countermeasures for solution.

At the National Fire Administration, arson received priority attention in 1977, based largely on recommendations in "Arson: America's Malignant Crime." Achievements ranged from providing technical assistance, allowing local communities to stop arson before it starts, to coping (through training and information) with arson when it happens.

In October 1977, Boston headlines announced the arrests of 26 alleged members of an arson ring operating in neighborhoods near the Boston Symphony. Information contributing to the breakup of this ring came from a Boston community group, the Symphony Tenants Organizing Project (STOP), with technical assistance from the Fire Administration's Public Education Office. This assistance helped Boston residents take advantage

of extensive socio-economic studies performed on urban fire problems by PEO. The result of this effort is an early warning system which monitors factors such as inflated property values, cost to mortgage ratios and property conveyances. The system has been used to forecast arson with a high degree of reliability.

Since the breakup of the Boston ring, the department of Commerce's Economic Development Administration has agreed to fund a program in cooperation with NFPCA to develop a Boston-style model community program that can be transferred to other communities around the nation. The model program will focus on housing services and insurance rehabilitation; it will begin in 1978.

Adults are not alone in deliberately setting fires, as many fire investigators know. Juvenile firesetters are major contributors to the enormous impact of fire loss. Education programs to prevent juvenile firesetting, coupled with counseling programs for known juvenile firesetters, can measurably reduce this toll.

For example, and education and counseling program developed by the Los Angeles County Fire Department was presented to 196,000 students in 420 schools over a three-year period. The number of fire incidents involving juveniles dropped from 169 at the program's beginning to 12. There were no repeat offenders. The Public Education office sponsored a 1977 grant to document and evaluate this and other successful programs for youthful firesetters. The result will be a practical guide for local fire departments to use in dealing with juvenile firesetters in their community.

The NFPCA also concentrated on building the skills of those who confront arson when it happens. For example, the National Fire Academy co-sponsored seminars for practicing arson investigators in two regions of the United States. These seminars reached 350 investigators; courses in an additional 10 locations are planned for 1978.

In addition, NFPCA staff members participated in arson programs sponsored by other organizations. They reached a total of 975 students through these programs.

In another effort, the Fire Reference Service of the Data center brought the total items in its arson collection to more than 800 in 1977. Gathered from a variety of sources and abstracted for easy reference, this is one of the most comprehensive collections of arson information in existence. Arson investigators can use the collection to learn about the latest investigative techniques and programs. A bibliography of the collection was finished in 1977.

Development of a model fire/arson investigation training course neared completion in 1977. The completed course package will include a job description of the fire/arson investigator, major topic and course outlines, delivery systems, instructor qualifications and evaluation systems for the program. This 80-hour course will be offered beginning in April 1978; a 24-hour course in arson detection will be available in July 1978. The goal: more arson arrests and convictions.

THE FEDERAL FOCUS

Fire protection is a concern many Federal agencies share with the NFPCA. Many of these other agency programs are part of a larger mission

(such as improved health care, housing or consumer safety). Nonetheless, there is a need to coordinate all Federal fire safety efforts to assure an orderly program for reduced fire loss. Congress recognized this need by directing the NFPCA to work with other Federal agencies in furthering the objective of reducing fire loss in a cost-effective fashion.

As a result of this mandate, NFPCA has designed its interagency coordination programs to begin meeting three basic needs:

1. to provide other Federal agencies with the type of assistance given to state and local governments;
2. to avoid duplication among Federal fire programs; and
3. to work toward intergrating Federal fire programs to meet national needs and implement a national fire policy.

The tool to fulfill these needs is communication. The NFPCA informs approximately 65 agencies of new developments, publications and seminars. Staff members also coordinate the activities of several Federal task groups using multidisciplinary expertise to attack common problems. NFPCA is also a cooperating member of the National Wildlife Coordinating Group to bridge the gap between structural and forestry interests.

Interagency coordination resulted in significant savings of Federal dollars in 1977.

Mobile fire apparatus represents a significant investment for fire protection on Federal property. Although most agencies need this protection, many do not have the expertise to develop specifications for acceptable units. T o assist in standardizing equipment and lowering per unit costs, NFPCA distributed a Navy-developed purchase specification for pumpers and aerial ladder trucks to other agencies in 1977. As a result,

NASA, ERDA and the Department of the Interior are "riding" the Navy's purchase order. The delivery time for their new apparatus has been reduced by as much as 24 months; a savings of up to $10,000 per vehicle has been achieved. Standardization efforts will continue in 1978.

Federal fire reporting also improved as the result of NFPCA initiatives in 1977. Through an interagency transfer of funds to the Department of the Navy, a recommended fire reporting and statistical system for all Federal agencies was developed. At least a dozen agencies have expressed interest in implementing this NFIRS-compatible system during 1978.

In a similar effort, the Department of Housing and Urban Development agreed to rely on NFPCA to collect and analyze fire data needed to evaluate HUD's mandatory mobile home fire safety standard. The results are uniform data collection, more valid statistics, reduced burden on state and local officials and reduced costs. HUD has also funded an interagency agreement for the National Fire Administration to establish a system of in-depth investigation of mobile home safety standard enforced by HUD can be evaluated.

Staff members provided expert fire safety assistance to roughly a dozen agencies during the year. These consulting efforts ranged from residential fire safety on Indian reservations to mandatory fire protection training for merchant seaman. An agreement to implement close cooperation with the National Institute for Occupational Safety and Health (NIOSH) was also signed during the year and a number of cooperative.

efforts were undertaken with the Consumer Product Safety Commission. NFPCA plans to intensify its efforts toward closer working relationships among Federal agencies with fire protection responsibilities.

REIMBURSEMENT FOR FIGHTING FIRES ON PROPERTY UNDER FEDERAL CONTROL

Under Section 11 of the Act, the Administration's Office of Chief Counsel is responsible for the reimbursement program for fighting fires on property under Federal jurisdiction. The fire service can claim the direct costs and losses incurred in fighting such fires. After a claim is made and the amount payable determined, the fire organization making the claim is notified. If the amount is considered acceptable, the Administration will request the U.S. Department of the Treasury to make the payment.

On July 18, 1977, the Administration issued the final regulations governing the submission and determination of claims made under this program. From mid-July to December 16, 1977, 46 claims totaling more than $1.2 million were filed. The smallest claim amounted to $4; the largest was $650,000.

PUBLIC SAFETY AWARDS

Section 15 of the Act creates the President's Award for Outstanding Public Safety Service and the Secretary's Award for Distinguished Public Safety Service, both to be administered by the NFPCA. Firefighters, law enforcement officers, including corrections and court officers, and civil defense officers are eligible for the awards.

The Departments of Commerce, Defense and Justice issued joint regulations for the two awards on September 30, 1977. Members of a Joint Public Safety Board, responsible for assisting the Secretaries of Commerce and Defense and the Attorney General implement Section 15, were being selected at the end of 1977. On January 1, 1978, the NFPCA began accepting nominations for the awards.

VICTIMS OF FIRE

As you know, the provisions of Section 19 of the Fire Act were directed to the Secretary of Health, Education and Welfare. By agreement between your Committee and the House Committee on Interstate and Foreign Commerce, those provisions were incorporated into the Emergency Medical Services Amendments of 1976. That law authorized $22.5 million for a three-year burn injury demonstration program to determine the magnitude of the problem. Funds appropriated to date have been over $6 million and the FY 79 budget requested is $ 3 million for this demonstration program.

AUTHORIZATION REQUEST

The President's Budget for 1979 is $17,826,000 for programs within the National Fire Prevention and Control Administration and the Center for Fire Research at the National Bureau of Standards.

We are also asking that an open-ended appropriation be authorized for 1980 so that appropriations may be made as required or, in the alternative, that a grammatical correction be made to H.R. 9553 at page 2, lines 2 and 12, to change "years" to "year" in the phrase "years ending

September 30, 1979" and on page 2, line 1 and 11 delete words "each of" from the phrase "each of the fiscal years." We also support the provision on page 1, line 6, of H.R. 9553 deleting the phrase "except Section 11 of this Act" from the Fire Act. This deletion would correct a technical error in the Fire Act clarifying the Fire Administration funds may be used to administer the claims program (Section 11) while the claims themselves will continue to be paid by the Treasury as prescribed in Section 11. The final request is to change the name of the Fire Administration to the United States Fire Administration as prescribed in H.R. 9553. This will avoid continuing confusion between the name National Fire Prevention and Control Administration (NFPCA) and that of the National Fire Protection Association (NFPA), a private organization which has existed for many years.

We appreciate the opportunity to preview our programs with you and will continue our testimony with Mr. Schaenman.

NATIONAL FIRE DATA CENTER: Program and Findings

In terms of deaths and dollars loss per capita, the United States has one of the worst records in fire protection in the industrialized world. One of the tasks of the National Fire Data Center is to find out why, and to develop information that can help us reduce the problem.

I would like to give a brief overview of the major programs of the National Fire Data Center, and some highlights of our findings on the national fire problem.

Objective and Purpose

The National Fire Data Center has three major objectives: (1) to accurately define the magnitude and characteristics of the fire problem in the United States, (2) to help state and local governments to do the same for themselves, and (3) to help disseminate information on the fire problem and the solutions to it.

Better information is needed at every level of government to help set priorities among various societal problems, and among fire protection programs. It also is needed to target fire protection programs more accurately for different regions, different groups of people, and different parts of the problem. It is needed to assess progress over time. And it is needed to identify success stories and help share what works. Of course, our goal is to reduce fire losses and improve the cost effectiveness of fire protection. Data is only a means to those ends.

Because there are never enough resources to do all one would desire in fire protection, it is crucial to have data -- and it must be accurate data -- to make informed resource allocation decisions. To the extent that the data is not adequate, we will be operating programs in the blind, and there will be some needless loss of lives and property due to mistargeted programs. There is a growing appreciation throughout the fire protection community that this is the case.

NATIONAL FIRE DATA SYSTEM

The Fire Administration from its inception has tried to use existing data sources to the maximum extent possible. A major drawback has been the lack of compatibility among these sources, such as the various state and local fire data systems. Another major drawback has been the questionable accuracy of much of the existing data.

In spite of the problems, we are working to adapt the existing data sources for use in making meaningful estimates. For example, in making national estimates of fire deaths, we rely heavily on the HEW Center for Health Statistics' data collected from death certificates. And we use data from private sector sources such as the National Fire Protection Association's annual survey of fire departments, the insurance industry's estimates of dollar losses, and the International Association of Fire Fighters' estimates of firefighter injuries.

But we are left with the problem that for many types of crucially important information, we need a "core" of key data on individual fires collected in a standardized, accurate way around the country. So we started

the National Fire Incident Reporting System.

National Fire Incident Reporting System (NFIRS)

The National Fire Incident Reporting System collects needed to make national estimates and provides state and local governments with a means to collect and analyze data for themelves. Rather than create yet another "national standard", we decided to use as a common language the Uniform Fire Coding developed by a consensus standards committee of the National Fire Protection Association. We now serve as an active member of the committee, working to further improve the data collection system.

In those states participating in the system, firefighters record for each fire the type of occupancy, probable cause, number of casualties, and other particulars. The local departments then send their data to the state, usually the State Fire Marshal's office. The state processes the data and returns feedback reports to the local departments. Every three months the state sends us a computer tape with their incidents and casualties on it. We use this data to build our national fire incident data base. We use this data base, along with data from other sources, to prepare our national estimates once a year. We also use this data base for many special reports during the year, often at the request of industry and other Federal agencies.

NFIRS is now operational or under development in the 19 states shown in Figure 1. States participate voluntarily. Thus far, the South Central and Southeastern States have not participated. This missing region

obviously is a source of major concern for those involved in making truly national estimates. We are all the more concerned because many of the missing states have among the highest fire death rates in the country. To help improve this situation, we have reserved the monies available for new states in fiscal '78 for Southern states ready to come into the system.

We eventually would like to have all states and territories in the system. While only a representative sample is needed for making general national estimates, more detailed questions about specific types of fires require a more comprehensive set of data; and, perhaps most importantly, we want to give every state, local government, and territory -- not just a random sample -- the opportunity to develop a data system that will allow it to better analyze its own problem and to compare itself to others.

To states willing to participate in the National Fire Incident Reporting System. We offer the opportunity to apply for a small start-up grant (up to $20,000) and a small second-year grant (averaging $10,000). These amounts typically cover only a small fraction of state costs. We also provide model forms for collecting data; computer software for processing the data at the state level and for giving local governments feedback reports on their own problems; and technical advice on setting up and running the system, and on analyzing the data from it. We also offer to install and test the software in each state and providing information on it. The National Fire Academy conducts courses to train trainers in each participating state on how to collect fire incident and casualty data. We also provide student handbooks containing instruction on

data collection.

We have also helped the states in the National Fire Incident Reporting System to organize themselves into a "users" group, not unlike similar users groups organized by computer manufacturers. The state program managers and data processing experts meet twice a year to exchange information on how to overcome problems and how to cut costs, and to discuss improvements in the system they would like us to make. The state representatives have formed a steering committee to plan these meetings, and the states share the costs with us. As each new wave of states join the system, they are taken under wing by the previous waves. We are also trying to promote communication between neighboring states, so that they can help each other, between national meetings, on a more frequent, informal basis. The users' meetings have, thus far, been a considerable success in the eyes of most state attendees. The states have even begun vying among themselves to see who will host future meetings. From our perspective, it has been a delightful example of Federal-State cooperation.

For local governments in states not yet participating in NFIRS, we offer any of the computer software and printed materials, and whatever technical advice we can afford. Some states even choose to obtain the materials and computer programs without applying for a grant.

There are still problems in propagating the system to the majority of states, in improving the validity of the data being collected, and in providing technical help to the state and local governments in developing their own systems to an acceptable level. But for the first

time, there now exists a way to add data from a number of different states, apples to apples.

In-depth Investigations

The National Fire Incident Reporting System collects a little bit of data on a lot of fires. For many types of questions, it is necessary to obtain more detailed data than one can afford to collect routinely on each fire. For these applications, we use in-depth investigations of carefully selected samples of fires.

At present, we have three major in-depth investigations programs. First, we investigate or charter investigations of major fires such as the recent Southgate, Kentucky, nightclub fire. The national Fire Protection Association just released a report on this fire, prepared under contract to us. We also will be releasing a supplemental report with additional analyses by the Fire Administration and the Center for Fire Research's own staff.

The second major in-depth investigation program, funded by HUD, is on the nature of mobile home fire problems, and the adequacy of the 1976 HUD mobile home standard with respect to fire protection. In this project, we are working with State Fire Marshals and others in eight selected states to do in-depth investigations according to protocol we established jointly with HUD, NBS, and NFPA. The mobile home study also makes use of data on mobile home fires from the National Fire Incident Reporting System, the Consumer Product Safety Commission, and State Fire Marshals' reports. We thus make use of an existing

network of trained investigators, help broaden their experience, collect data on a vital project for another agency, and explore another piece of the fire problem, all at the same time.

The third in-depth investigation project is our prototype effort for the Consumer Product Safety Commission (CPSC) in fires caused by a few selected types of consumer products. Here we are pilot-testing the investigation procedure. It will be CPSC's option to decide whether to fund additional investigations through us.

NATIONAL FIRE ESTIMATES

The Data Center not only collects data, but also analyzes it and tries to draw policy implications from it. Our major product is a series of annual national estimates reports, entitled Fire in the United States, the first of which is in final draft. This report describes the magnitude and characteristics of the U.S. fire problem, compares it to that of other nations and other national problems, and describes the characteristics of the problem in a way intended to be helpful for making fire protection program decisions at various levels of government. The report is also intended to serve in part as a model for other levels of government in analyzing their own data. In developing the report, we paid considerable attention to the quality of the data presented. Wherever appropriate and feasible, data from a number of different sources was presented, and the validity of the estimates discussed.

We really still do not know very much with confidence -- that is, with quantitative precision -- but there has been a great deal of progress in the last year. Some highlights of the first national estimates report

are discussed below. We are following up some of the tantalizing observations and questions in more narrowly focused studies. Unfortunately, we cannot do this as fast as we would like on all fronts, so there is bound to be frustration when we can't say why some of the results occurred.

Fire Deaths, Injuries, and Dollar Loss

We estimate that there are approximately 8,000 deaths; 300,000 injuries; and over $4 billion direct property loss from fire each year in the United States (Figure 2). Total economic costs of fire protection and fire losses are much higher than that -- over $13 billion, possibly much higher.

Males outnumbered females almost two to one as casualties. Over two-thirds of civilian casualties occur in the home, usually in ones and twos. The Southgate fire which claimed over 160 lives is a rare exception. Because of the publicity given to a few large non-residential fires, the public probably misunderstands the fire problem, and under-appreciates it. Consider the fact that the annual number of fire deaths is about that which would result from having a Southgate-size fire in every state once a year.

Because of this situation, a major part of the Fire Administration and Center for Fire Research program is being directed toward the residential problem.

The intensity of the fire problem varies a great deal from place to place and between urban and rural areas. Figure 3 shows how the fire death rate varied from state to state in the mid-70's. It is based

on data from a variety of sources, including the HEW Center for Health Statistics, State Fire Marshals' reports, and an NFPA survey. The map shows that Alaska and a belt of Southeastern States have the highest fire death rates in the Nation. In any given year, the death rate may suddenly be high in a given state because of one large fire or the laws of chance, but most of the states shown to have a high rate in the figure have had it for at least a five-year period (Maryland was the only anomaly).

To better understand who the victims are in the states with high fire death rates (and some other states for comparison), Figure 4 shows fire death rates for urban and rural blacks and whites. It is well known that the elderly and the very young have high fire death rates. This table gives some additional insights: death rates for blacks are much higher than for whites; rural rates are generally higher than urban; and rural blacks in particular have a disturbingly high death rate. The picture is quite similar from state to state.

Figure 5 shows how fire death rates vary by community population size for the whole country. The curve is roughly U-shaped with high rates for rural areas and large cities, and lower rates for medium sized cities. (As a side note, we have given information on the rural fire problem to the Rural Development Service, U.S. Department of Agriculture, and have helped them write the fire portion of their annual report to Congress on the state of rural America.)

Data from the rural sector is often of lower quality than that from other parts of the country. It is comprised of a small amount of data from a large number of departments; it requires a special effort to verify that the emerging picture is indeed correct, and to find out more about why the rural problem is so severe. Because of the above findings, the Data Center has planned a special project in fiscal' 79 to gather data on the rural fire problem.

What are the leading causes of fires, especially residential fires? Figure 6 shows the leading causes in Ohio and California, the first two states for which we had a full year's data in our National Fire Incident Reporting System. Cooking is the leading cause of fires. Smoking-related fires are the leading cause of deaths and injuries. Incendiary and suspicious fires are the leading cause of dollar loss. But regardless of which loss measure one considers, the same group of causes emerges as important, though in slightly different rank order from one measure to another.

Figure 6 is simply a summary. We can report causes by much more detailed categories, and can categorize them in many different ways with our new data system. When considering flammability standards, for example, we can determine the number of fires which involve various types of home furnishings such as upholstered furniture or bedding.

Figures 7 and 8 show the frequency of different causes for non-residential structure fires in California and Ohio. The charts show that incendiary and suspicious fires lead in terms of frequency and dollar loss. The

profile of causes varies from one type of occupancy to another. We can examine cause categories for much more detailed occupancy categories than those shown in Figures 7 and 8. That is, we can get a detailed picture of the problem for particular types of businesses, institutions such as nursing homes or prisons, schools, etc.

U.S. Versus Other Countries

As mentioned earlier, the United States fire problem is among the worst in the world, both in human losses and economic losses. In terms of fire deaths per capita, we are about tied with Canada for being highest among the countries for which we have comparable data, as shown in Figure 9. We are third highest in dollar losses from building fires (the most comparable economic loss statistic). Figure 9 also shows that we are the only country high in both human and economic losses. Canada for example is highest in fire deaths, but in the middle in terms of dollar loss per capita; Norway is high in dollar loss, but in the middle in terms of death rates.

It is difficult to make accurate comparisons, and no one is sure why we have such a relatively poor performance. But a recent study done for us by the Georgia Institute of Technology on the reasons for international fire differences found that these differences were indeed real, though somewhat less extreme than previously thought, after screening the data.

There are many hypotheses for the international differences. There seems to be a high correlation between fire losses and technological and economic development. For example, electrical energy usage per

capita correlates with national fire rates, and wealth per capita correlates with fire rates and losses. Crudely stated, the more there is to burn and the more there is to serve as ignition sources, the more fires there seem to be. But this is an oversimplification. Even if we eliminate all U.S. fire deaths resulting from electrical ignitions, we would still be in the same rank for fire deaths. There appears to be another, and perhaps even more important issue, and that is the amount of prevention practiced in the various countries, and the degree of public carefulness. These factors are hard to quantify for statistical analyses, but there seems to be, for example, a greater concern in Japan about the hazards of fire than in the U.S., a greater percentage of fire department manpower spent on prevention in Tokyo than in U.S. cities, and more of a social stigma attached to those in Japan who accidentally cause fires than there is attached to those who cause fires in the U.S. The Germans and several other countries seem to have more highly trained inspectors, and stricter enforcement of their codes.

OTHER DATA CENTER FUNCTIONS: REFERENCE SERVICE AND COMPUTER SYSTEMS

The Fire Reference Service is a small unit in the Data Center, devoted to making information such as the above accessible to the fire service, industry and others. This is true not just of Fire Administration information, but the general fire literature, as well.

Our Fire Reference Service operates in several modes. First, we started Fire Technology Abstracts, which provides substantive abstracts of the

applied fire literature, published both in the U.S. and abroad. This publication is made available by subscription through GPO to the fire service and others at a nominal price. These abstracts provide a means for the fire service and the public to become aware of fire-related information, not only in the many fire publications, but also in the occasional articles and reports from organizations and sources not in the fire business day to day. The abstracts also include information on patents, foreign research, and unpublished reports.

Second, the Reference Service answers queries from Federal agencies, Congress, industry, and the public for information on particular fire protection problems. It informs those who request information of relevant documents; it develops bibliographies for them, or researches their questions directly, if possible. At the present, this service is provided by one person.

Finally, the Reference Service provides the basic library service for NFPCA, and as time permits develops specialized information collections, such as the one we recently developed on arson.

The National Fire Data Center also provides computer service to NFPCA, using computer terminals that access the main Department of Commerce computers. We have no computers of our own.

CONCLUSION

We are not doing very well compared to other nations in fire protection, but we are now taking the necessary first step of getting a better

handle on exactly what and where the problem is. We hope that this will allow us to make a much better attack on it than was possible before.

Figure 1

NATIONAL FIRE INCIDENT REPORTING SYSTEM

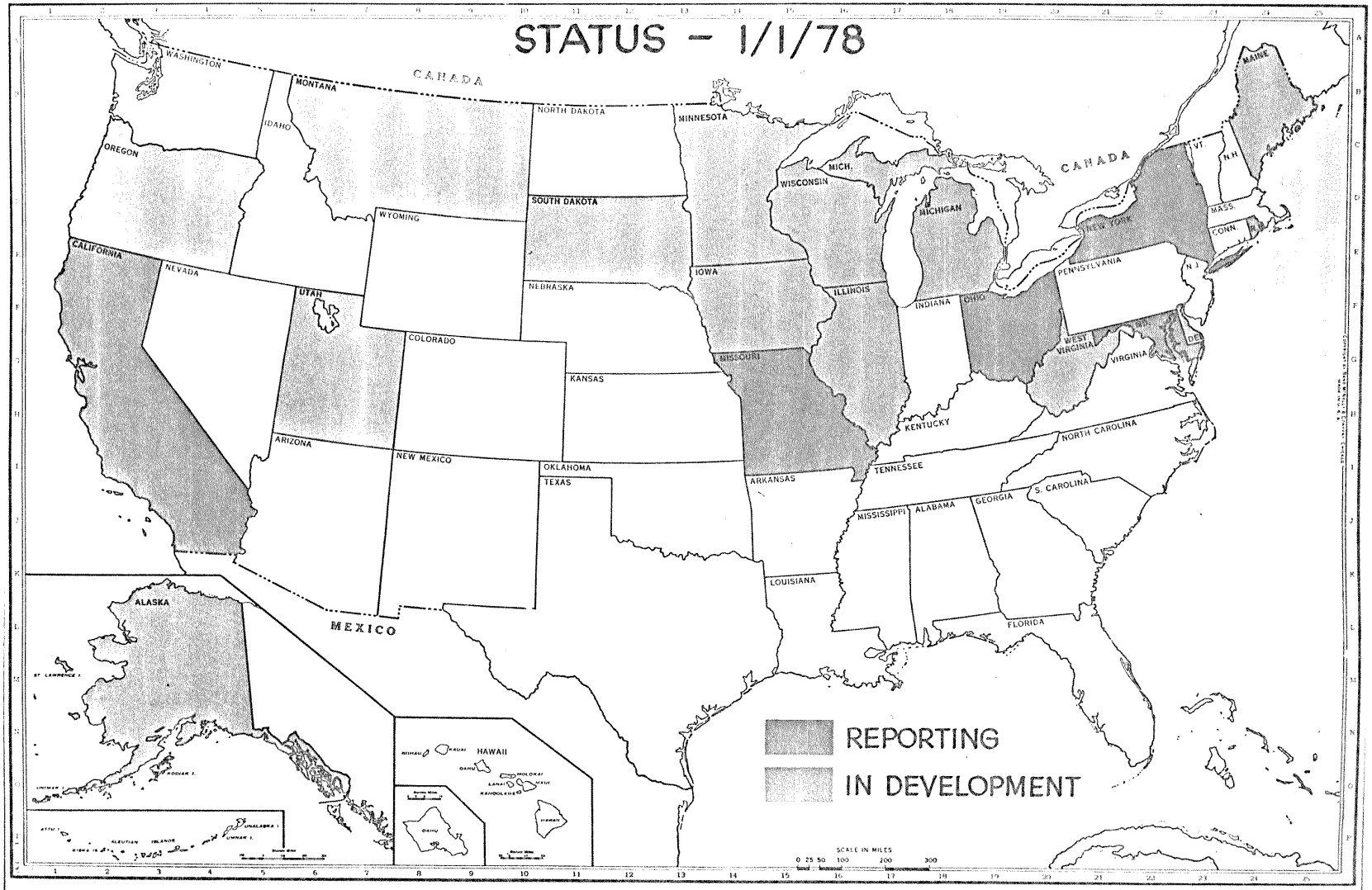


Figure 2

FIRE IN THE UNITED STATES

DEATHS	INJURIES	DOLLAR LOSS
7,500	300,000	$4 BILLION

Who:

Men 2 : Women 1

Where:

Home 2 : All Else 1

Figure 3

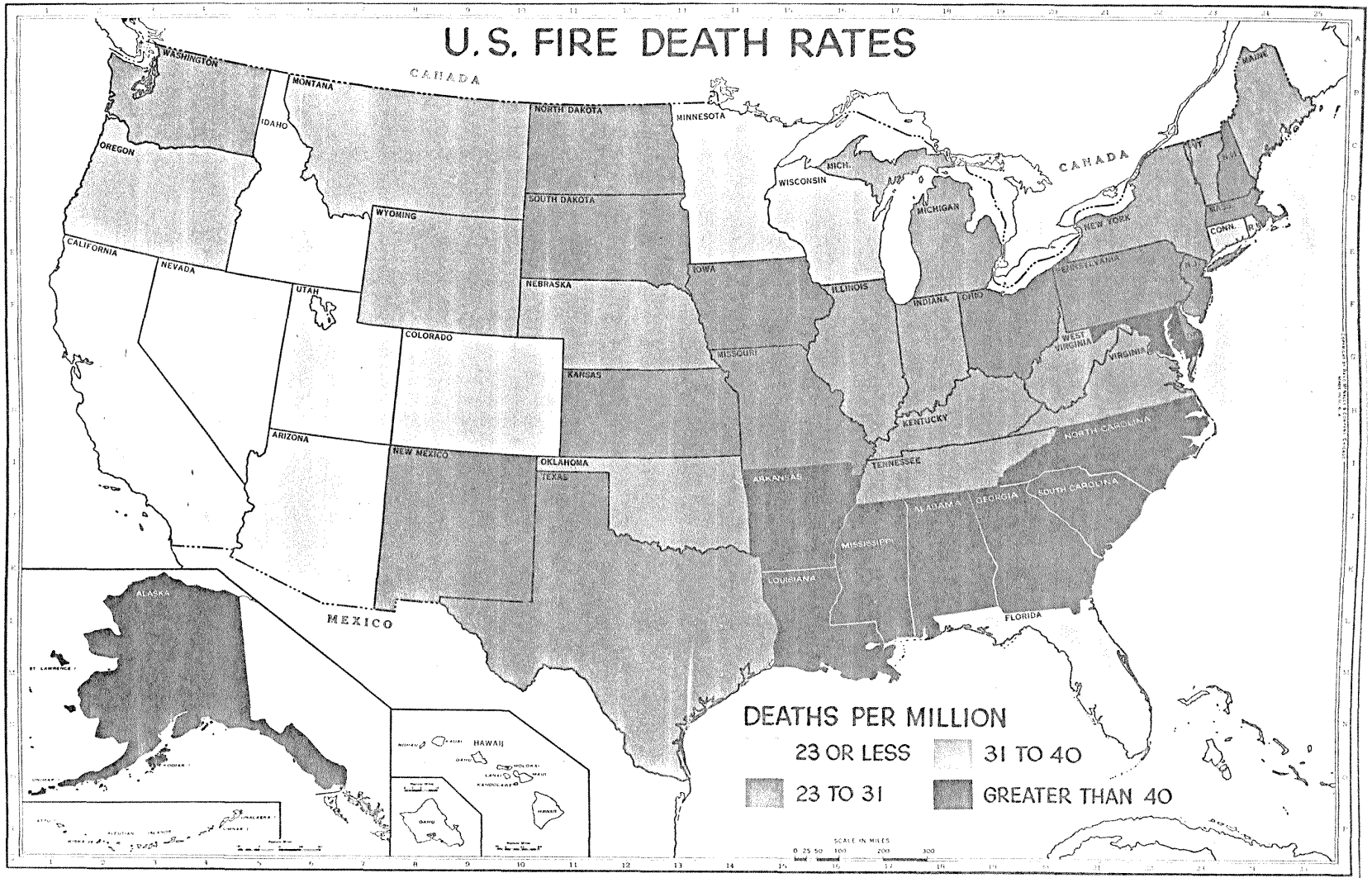
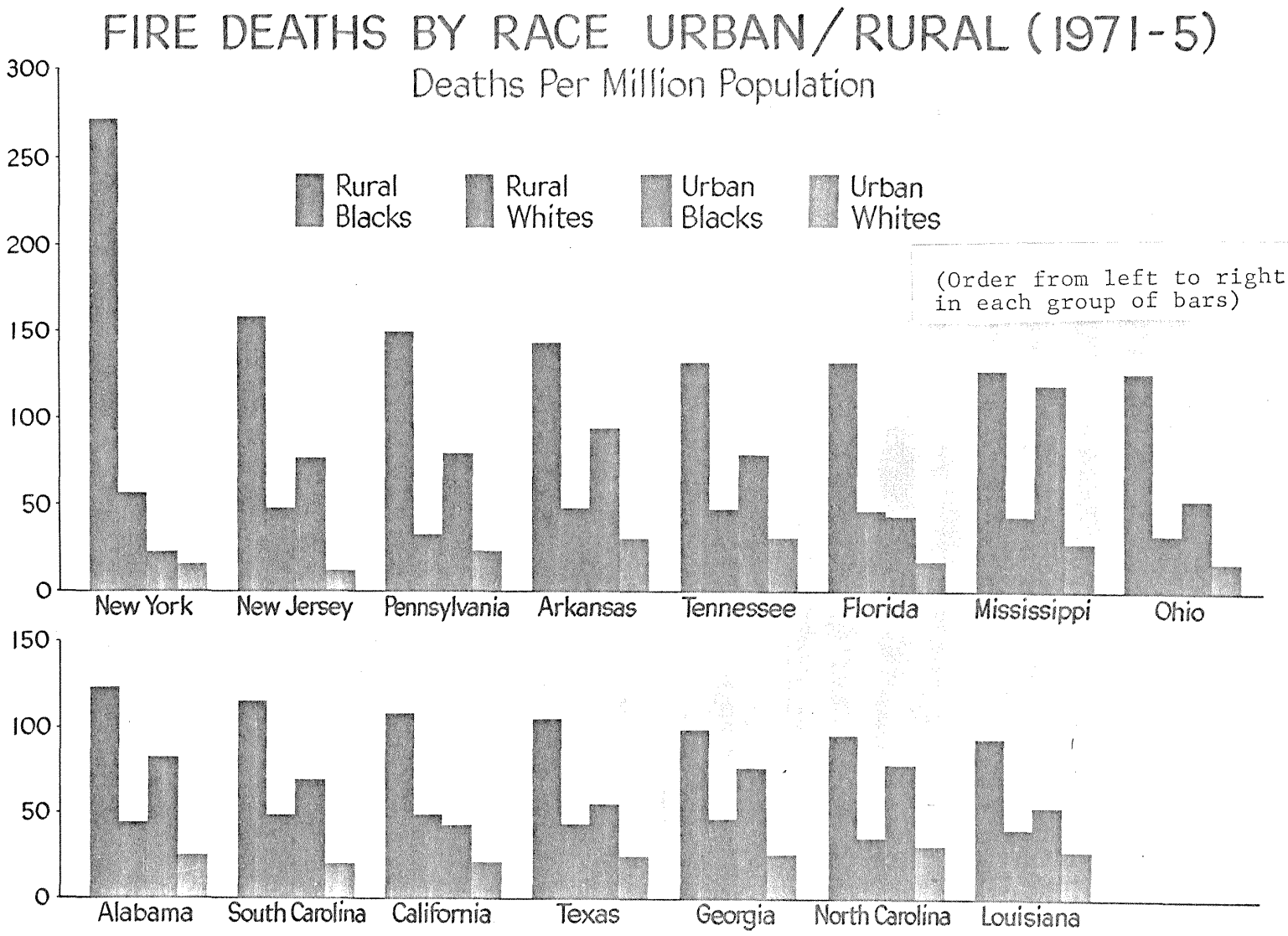
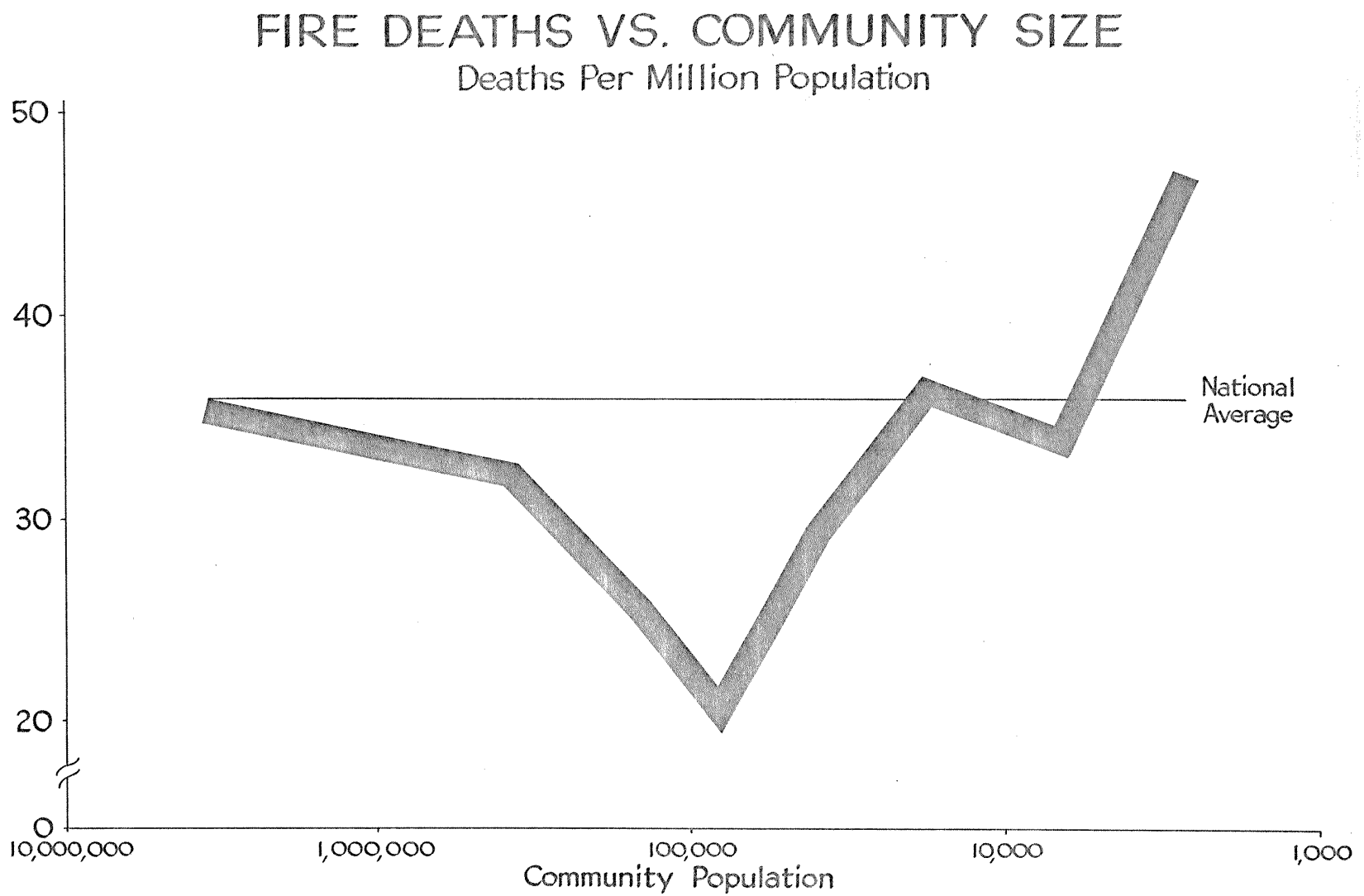

U.S. FIRE DEATH RATES
CANADA
WASHINGTON
MONTANA
IDAHO
OREGON
NORTH DAKOTA
MINNESOTA
SOUTH DAKOTA
WYOMING
CALIFORNIA
NEVADA
UTAH
COLORADO
NEBRASKA
KANSAS
IOWA
MISSOURI
ILLINOIS
INDIANA
OHIO
MICH.
WISCONSIN
MICHIGAN
CANADA
NEW YORK
PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
ARKANSAS
MISSISSIPPI
ALABAMA
GEORGIA
SOUTH CAROLINA
LOUISIANA
FLORIDA
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
MEXICO
MAINE
CONN.
ALASKA
HAWAII
DEATHS PER MILLION
23 OR LESS
23 TO 31
31 TO 40
GREATER THAN 40
SCALE IN MILES

Figure 4



Source: Fire Deaths: National Center for Health Statistics, Population: U.S. Bureau of the Census

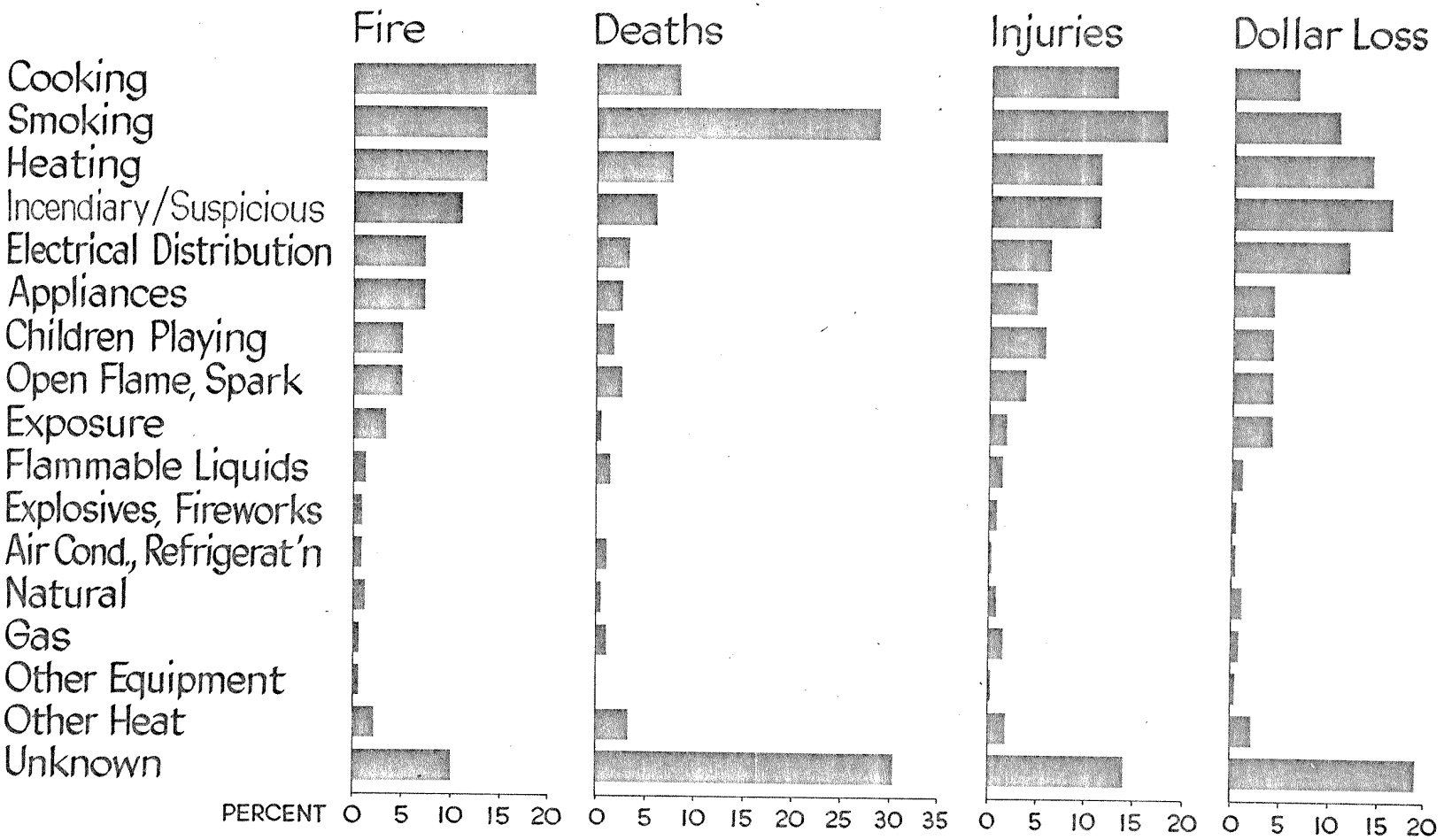
Figure 5



Source: 1974 NFPA Survey

Figure 6

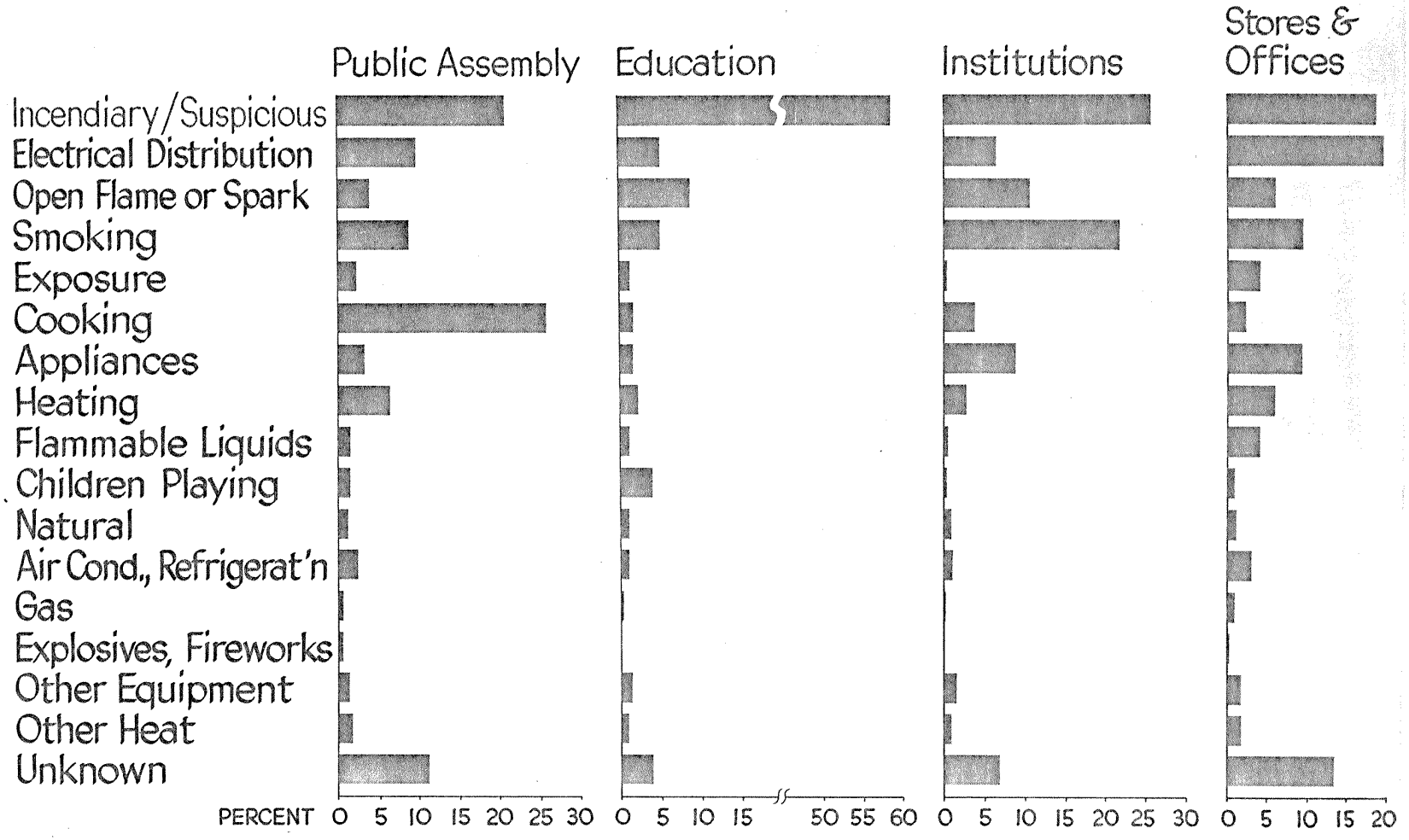
CAUSES OF REPORTED RESIDENTIAL FIRES



Source: Ohio (1976) and California (1975) data combined

Figure 7

CAUSES OF FIRES IN NON-RESIDENTIAL STRUCTURES



Source: Ohio (1976) and California (1975) data combined

Figure 7 (Cont'd)

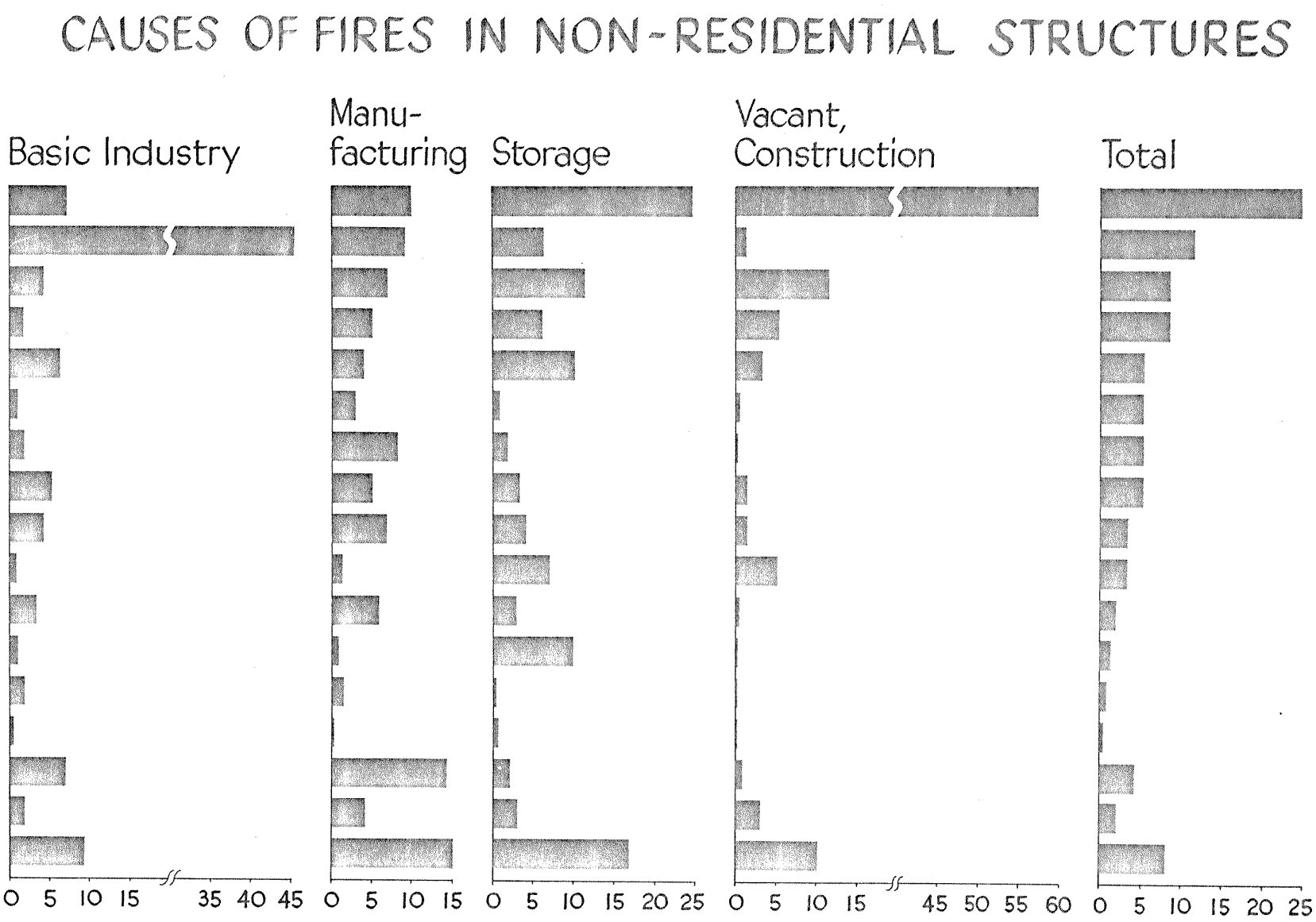
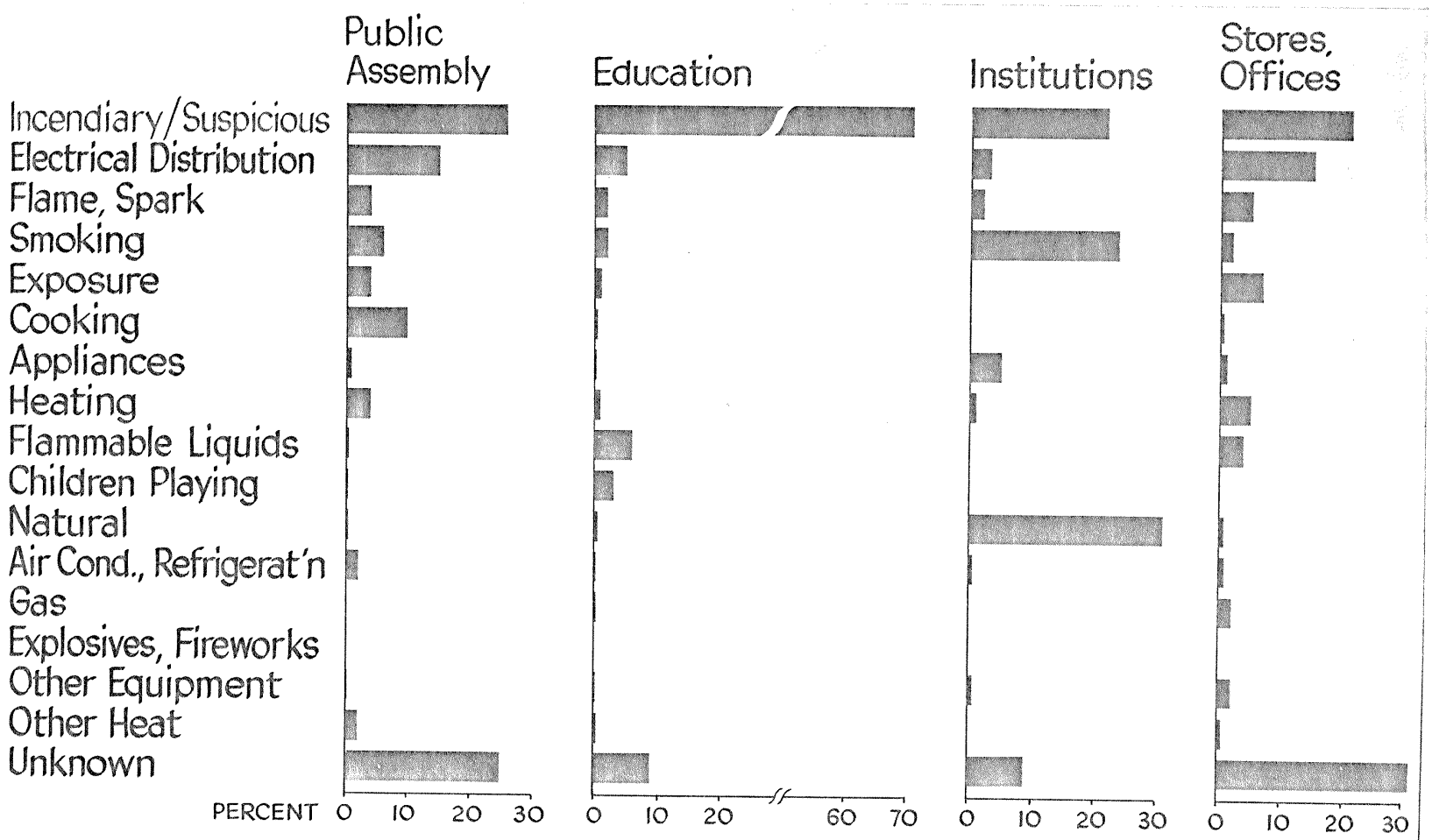


Figure 8

FIRE DOLLAR LOSS BY CAUSE IN NON-RESIDENTIAL STRUCTURES



Source: California (CFIRS 1975) and Ohio (NFIRS 1976) data combined

Figure 8 (Cont'd)

FIRE DOLLAR LOSS BY CAUSE IN NON-RESIDENTIAL STRUCTURES

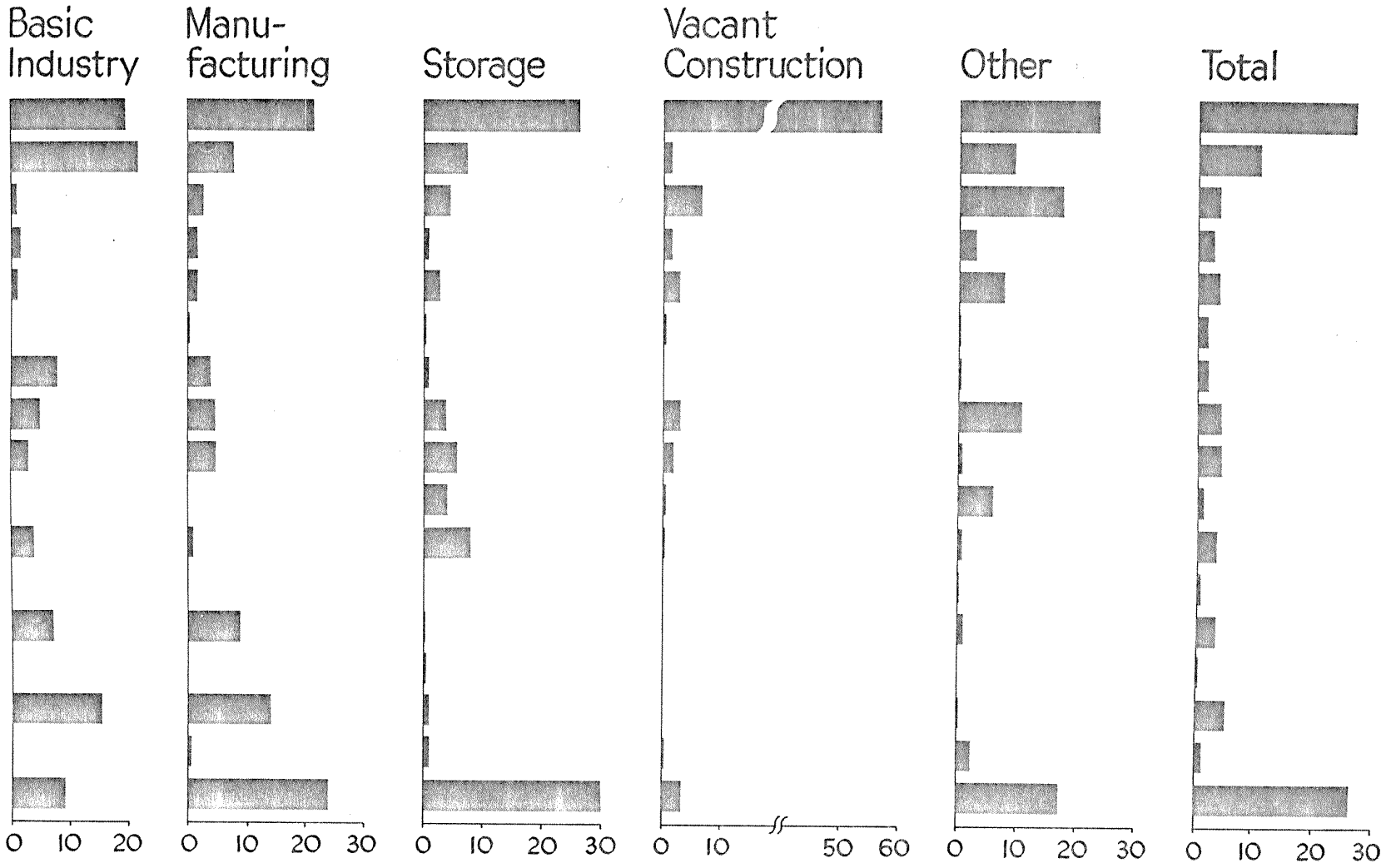
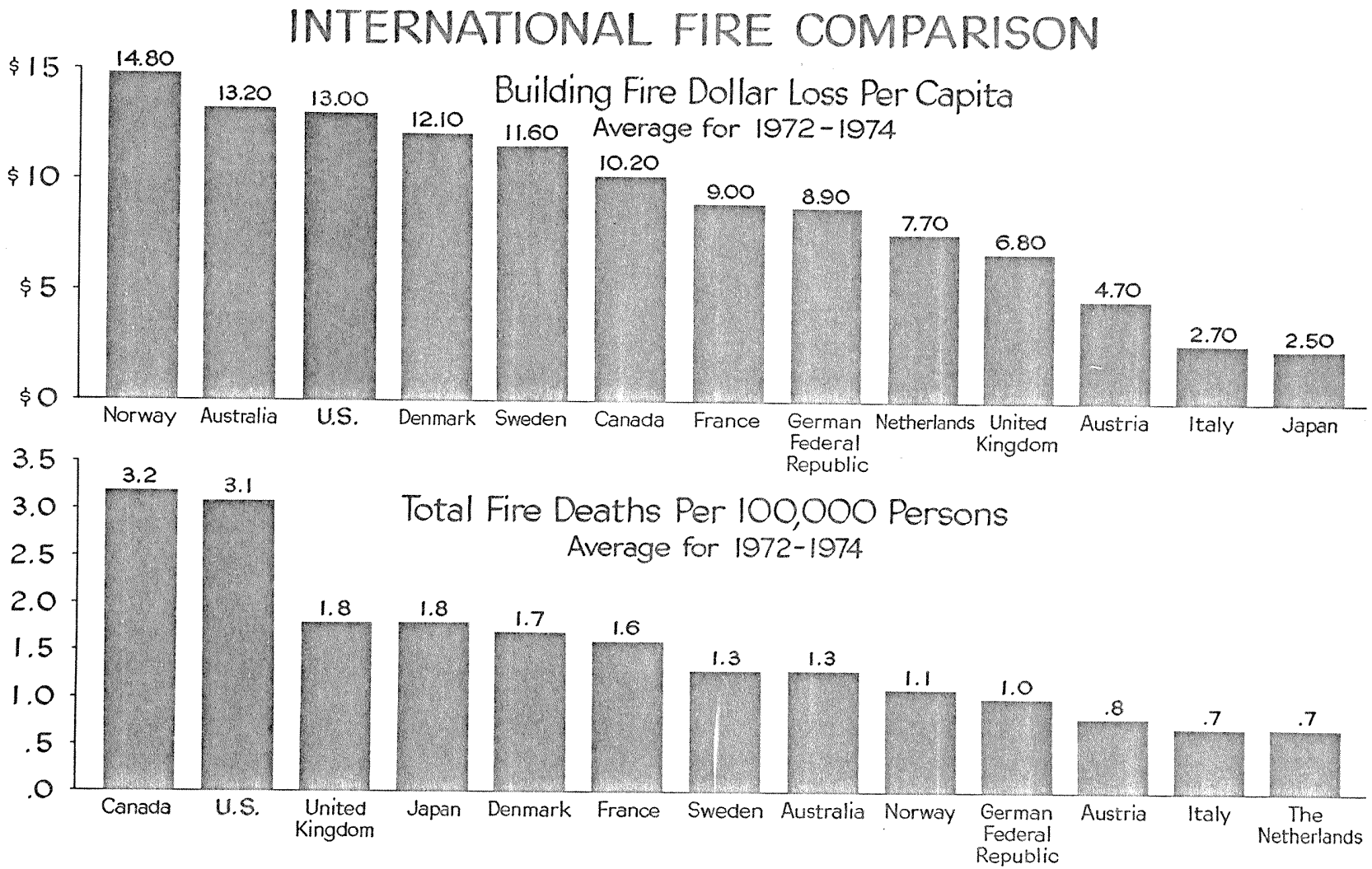


Figure 9



Source: Rardin and Mitzner, Determinants of International Differences in Reported Fire Loss: Preliminary Investigation (Atlanta, Ga.: Georgia Institute of Technology for the NFPCA, forthcoming)