

EM915-1

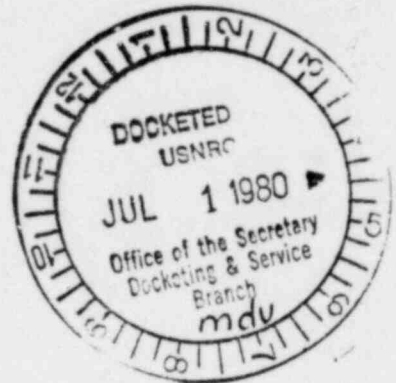


Patton Fire Suppression Systems, Inc.

4740 Myrtle Avenue, Suite B
Sacramento, California 95841
Telephone (916) 635-4527 or 338-0943

DOCKET NUMBER
PROPOSED RULE PR-50 (26)
(45 FR 36082)

June 16, 1980



Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington D. C. 20555

SUBJECT: Proposed Fire Safety Regulations

Gentlemen:

First, I agree that there is a most serious need to establish rules for fire safety in nuclear facilities, and to upgrade existing facilities.

Fire protection is, in my judgement, presently the single most serious safety problem associated with the nuclear program.

The reason for this may be partly due to some inadequacies of evaluations on the part of the early planners of the nuclear safety programs - but if so, this was a minor portion of the total problem.

The major portion of the blame for any existing fire deficiency lies, in my judgement, with a fundamentally flawed and misdirected basic fire safety "science".

Our fundamentals of fire safety, which were written into a set of "national fire codes" by an organization called the National Fire Protection Association was developed, for the most part, by the insurance industry, and other organizations that made profits from fire. Biases that improved the profits of these organizations have been structured into our basic codes.

In the most simple terms, the mice were put in charge of the cheese.

In short, I contend that the fire codes that evolved are primarily documents that serve as marketing aids and marketing controls for a vast multi-billion dollar industry of fire safety products and services.

..... 2
C. H. 7/1/80
L-4-1, A.50

8007150095

"If it's not fire sprinklered - It's not fire safe."

The primary funding for the creating of these codes came from industries that drew profits from fire. Over the years these codes and practices in fire safety gradually evolved into forms that covered gaping safety flaws with the cosmetics of "code complying" and "laboratory approved".

Some years back the National Commission on Fire Prevention and Control was established to investigate fire within the United States. The study showed a terrible fire safety situation within the U. S. However, publicly the commission stopped short of suggesting that the self-established "establishment" of fire safety - those who control fire regulations (who are not public officials) have some built in and direct conflicts of interest with lower cost - more reliable avenues of improved safety.

Some of the fire codes currently enforced in the U. S. are so out of step with engineering reality that they could be termed ludicrous and laughable - except that they serve as a cover for a commerce of fire safety products. Many of these products are overpriced and unreliable - poor quality products which would not "sell" at all in a truly free market.

These views are not mine alone. There have been investigations into these matters by the Federal Trade Commission, the Department of Justice, and by Congressional Hearings, and many who have looked into these matters have privately confirmed my views - but the legal framework behind the codes is so intricately developed, and so nebulous as to how the influences are exerted, that it is most difficult to prove a case of collusion, obstruction of commerce, price fixing, market controlling, or willful structuring of biases into the regulations.

And, there is reluctance to "throw the codes out" because essentially they are the only codes we have.

Now, one of my fundamental claims is that the water spray fire sprinkler system is potentially the most efficient and most economical fire safety tool yet developed by man - and that its potential cost efficiency is so much superior to other systems available - that there has been a concerted effort within the fire safety power structure to subvert it by over regulating it into infrequent use, and by obstructing normal research and evolution of the system, and by subtle and long term implications that it is unduely dangerous on electrical equipment.

If this is true, this is then a fundamental cause of such fires as Brown's Ferry, the Pentagon computer fire, and the Covington, Kentucky night club fire.

In other words, I claim that the fire codes which we all depend on have been subverted so as to not only cause an awesome fire death rate in America, but indeed military installations and our wartime capability has been compromised (as well as the safety of our nuclear facilities). Putting it bluntly - much of our "fire safety science" has been prostituted.

June 16, 1980

I consider "fire science" to be the achilles heel of our present American technological base.

If a major nuclear accident occurs, fire probably will be the underlying factor.

So, yes, I agree that you should establish basic standards for fire safety.

But, I believe when this program is established it should not overly rely on existing NFPA standards. I believe the N.R.C. should establish a program to ascertain the viability of our existing codes - and begin a process of developing new fire codes; especially a new fire sprinkler code.

Very truly yours,

Richard M. Patton, F.P.E.-P.E.
President

RMP:jw

cc: David P. Notley

June 16, 1980

I consider "fire science" to be the achilles heel of our present American technological base.

If a major nuclear accident occurs, fire probably will be the underlying factor.

So, yes, I agree that you should establish basic standards for fire safety.

But, I believe when this program is established it should not overly rely on existing NFPA standards. I believe the N.R.C. should establish a program to ascertain the viability of our existing codes - and begin a process of developing new fire codes; especially a new fire sprinkler code.

Very truly yours,

Richard M. Patton, F.P.E.-P.E.
President

RMP:jw

cc: David P. Notley

THE FIRE MONOPOLY

STATEMENT OF RICHARD M. PATTON, PRESIDENT
PATTON, INC., COLUMBUS, OHIO

BEFORE THE SUBCOMMITTEE ON ANTITRUST AND MONOPOLY
UNITED STATES SENATE COMMITTEE ON THE JUDICIARY

April 20, 1977

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to present my views on S.825.

I am a graduate fire protection engineer and I am also a registered professional engineer in the States of California and Ohio. I have a background of more than 25 years in fire protection system design, inspection and code analysis. I am President of Patton, Inc. my own fire protection engineering and design firm, located in Columbus, Ohio.

The power to regulate is the power to control. Invariably, the battle cry for the creation of regulatory power is that the public must be protected from dishonest and corrupt men.

However, controls are a two edged sword, and who is to say for sure that the regulators themselves may not side with the corrupt element, rather than the honest man, and make corruption the standard for the industry; doing it very cleverly, of course, so that the corruption is well hidden and elaborately legalized.

I believe this possibility of regulatory power becoming corrupt is especially possible when the regulators self establish their own power, and are answerable to no one. In such an environment, where public money is not available, the regulator of necessity must seek the cooperation and help of those who are being regulated. The regulator must finance his own operations and usually the only way to do this is to tax those who are regulated. Those who are taxed and regulated will cooperate only if the regulations are designed so as to increase their profits and restrict competition. Thus, the public often becomes the ultimate victim of the collusion.

More than 80 years ago a regulatory monster, which I term the Fire Monopoly, was born. It consists of the National Fire Protection Association, Underwriters Laboratory, and a broad spectrum of allies consisting of those who have learned how to grow wealthy by being regulated by the Fire Monopoly. Today, this monopoly controls probably more than 30 billion dollars worth of commerce, nobody knows for sure how

much. The NFPA Congress and its more than 200 codes and standards which includes millions of regulations that have the power of law, have a greater impact on our lives than any other power base in America, save only the Federal Government. Further, under the umbrella of the master code makers a great proliferation of other codes and regulations have evolved.

Today, the Fire Monopoly defines how we can construct a building, what materials may be used, and the general shape and size of the structures as well. The fire codes will sometimes actually double the cost of construction. The Fire Monopoly has gained the power to regulate air handling systems, electrical systems, aircraft interiors, fire department apparatus, hospital emergency systems, elevators, communication systems and perhaps 10,000 other items — nobody knows how many for sure. But this octopus is not through yet, it is now closing in on the single family dwelling, and in addition, it is now laying a framework to gain control over most of the furnishings that go into buildings, including furniture on the premise that the burning characteristics, and toxicity of the combustion products of these materials must be regulated.

But, this fire monopoly operation is so devious and so clever, that the majority of the American people do not even realize that such vast non governmental regulatory powers exist.

Now, it is bad enough from my viewpoint that every time I string a piece of electrical wire in my home, or put carpeting on the floors, that I have to pay a tax to the Fire Monopoly. But this is only the surface cost. What concerns me most is that I know beyond doubt that this regulatory octopus requires, as a fuel for its growth, a continuity of fire in the U.S. This monster feeds on fire. Fire is as essential to its existence as food is to man, or highways are to General Motors. This monster creates its own subtenance, and the U.S. has as a result the most awful fire death rate, fire injury rate, and property damage rate in the entire world.

For more than 25 years I have had a very close association



Patton Report

A PUBLICATION DEDICATED TO HUMAN FIRE SAFETY

Published Bimonthly, 6 Issues Per Year By Patton

6075 Cleveland Avenue, Columbus, Ohio 43229

with this monster, first working within the system to a position where I became chairman of important committees and became a recognized expert in the fire safety field, and then later in fighting to bring about fire protection systems that would save lives, and observing the manner by which the monster operates to defeat such efforts. I have learned how it operates, and why it operates.

I will now explain how and why the NFPA and the UL were created. They were created by the fire insurance industry to serve the needs of the fire insurance industry. Insurance is a tax on a cash flow. Insurers transfer money from all those who buy insurance to those that suffer a loss. The insurer takes a portion of the money transfer.

Fire insurance works best when the burn rate is healthy, but not excessive. If the burn rate is very excessive, even the extremely high rates of \$5.00 to \$10.00 per \$100.00 of value won't cover the losses. And besides, insurance is hard to sell at extremely high rates. But on the other hand, when fire loss is extremely low, the rates seek their proper level, and the cash flow becomes a trickle, and hardly worth the bother. To illustrate the magnitude of the cash flow variation, a market that will produce a \$30 million dollar cash flow at a \$3.00 rate will produce only \$300 thousand at a 3 cent rate, and both \$3.00 and 3 cent rates are available.

The industrial revolution of the 19th century created a need for large factories, mills, chemical plants, and warehouses. A multitude of new fire hazards evolved. Many insurance companies went bankrupt trying to insure these huge and high value properties because the burn rates were very excessive.

The insurance industry tried out all the fire protection techniques in their books, including inspections, fire prevention campaigns, fire brigades, construction controls, and everything else they could think of. Nothing worked satisfactorily. Industrial fires continued at an excessive rate. Insurance companies that insured them were going bankrupt.

However, as they say, necessity is the mother of invention and during this period of excessive industrial fires a solution was invented. It was the automatic sprinkler system. Where all else failed, sprinklers worked. Factories so equipped no matter how dangerous they were previously, stopped burning. The insurers were smiling again.

But, in time, their smiles once more were wiped away. By the 1870s and 1880s they found a monster had been created. American inventiveness was perfecting the sprinkler, and insurance rates did not stop when they fell from the ridiculously high, they plummeted right through the middle range to the ridiculously low. Fire was on the way out, and with it fire insurance.

Factory owners found they no longer had to pay high commercial rates, they could form cooperatives called mutuals; and these same factories that just a few years previously could not be successfully insured even at \$5.00 rates, when protected with sprinklers became insurable with rates that fell to the 3 to 10 cent range. Often, even at extremely low rates, the plant owners got some of their money back at the end of the year because almost nothing burned.

The fire insurance industry found they faced their greatest crisis ever. The factory was only a small piece of the total fire insurance business, probably no more than 20% of it. If the sprinkler could convert the very high hazard industrial risk into nearly a "no loss" situation, horrors, what would happen to business if the sprinkler was further perfected and applied to all properties. Under the terrible threat of "no loss" fire market, the insurers acted with speed and decisiveness. They met and created the National Fire Protection Association and

The Underwriters Laboratory, and they promptly established complete and absolute control over this sprinkler system menace. From that day and forward, the sprinkler invention was the captive of the monopoly.

The Fire Monopoly grew over the intervening years, and as its influence and operations grew, the number of supporting organizations that came in under the tent proliferated. By and large, those organizations that provided the most support to the regulatory entity were those organizations that marketed fire safety equipment and/or services. Always there was a strong motivation for codes and regulations that best served the interests of those who became part of the system. The codes became the primary way to sell fire safety goods and services. Those organizations that won the regulatory wars sold the most products and made the most money. Within this environment the best solutions to fire also represented the greatest threats to the established order. Thus, what worked well was most suspect, and what worked poorly and was priced high was often best liked by the most voters.

I have studied the operations of the fire monopoly for the past 25 years. I have analyzed the riddle of their activities just as a counter spy studies and breaks an enemy code. Here is a step by step explanation of how they perpetrated the fraud.

The fire phenomenon requires a high temperature in order to grow. Most combustibles require a 600°F or higher temperature to be sustained. Logs burn within a fireplace only because, when once ignited, the heat flux from one log sustains the others, and vice versa. Remove one log from the mutually sustained high temperature environment, and almost immediately the fire upon that log will die.

The one great enemy of fire is water. A fine water spray will almost instantaneously drop room temperature below water's boiling point of 212° F. This is about 400° too low for fire growth. So, in order for fire to be able to continue to be a major problem, it was absolutely essential that regulations be established to prevent water (which was already available in buildings) from being used in practical ways to terminate fire growth.

The first step in this scheme was to establish rules, test procedures, and approval procedures of sprinkler design. The regulations demanded water quantities for automatic sprinkler systems that were usually 10 to 100 times greater than the amounts of water normal to the buildings. This made sprinklers impractical for any except the largest of buildings (which is where the underwriters needed protection from excessive loss). The regulations guaranteed that for the next 70 years more than 90% of the buildings constructed in America would not contain an automatic fire suppression system using water.

Next, they established rules and approval procedures that eliminated the use of the available water for even manual fire fighting purposes in buildings. They failed to recognize and label practical and readily usable size fire hose.

Research proved that a 5 to 10 GPM water spray (such as that which can be obtained from a garden size hose) has a truly amazing ability to control the one room fire. Instead, the U.L. and NFPA promoted a 2½ gallon package of water, called an extinguisher, with chemical propellants, that would emit a pencil thin straight stream of chemicals and water for the most inadequate duration of 50 seconds. I have long held the belief that there is only one good way to extinguish a substantial fire with this abomination, and that is to throw it with all your might at a water pipe in the vicinity of the fire, and pray that you break the pipe.

The UL and the NFPA of course had to approve a fire hose for buildings. There was no way around it. So they set the standards so that monstrous sized hose (2½ and 1½ inch

hose) was labeled and marketed as "fire hose". This oversize hose has a stiffness that defied use by any but the best trained professional firemen. It had a nozzle reaction that overwhelmed the amateur. In addition usually it required more water than that which was normally available. This nightmare for the untrained fire fighter is still mandated for buildings throughout the nation at an installed cost of near \$500.00 per hose station. Statistics indicate that in better than 90% of the fire situations the citizen has the good sense not to use this weapon, when he discovers a fire.

Having mandated that water which was already available in buildings (and therefore free) was off limits for fire protection, the fire monopoly moved on to new frontiers, and even more elaborate and cunning schemes.

If we separate the combustibles into two categories, one part being the construction materials that go into the building frame and shell, and the other part being the combustible furnishings and contents that are brought into the structure after it is built; we will find that a full 90% of the fire problem lies with the burning of the combustible contents that are brought into the completed building. By and large the combustibility of the structural shell is irrelevant to fire because most people are killed by the content fire before the structure itself is significantly involved.

The contents fire is especially dangerous because of the flashover phenomenon. In small rooms where the heat from a fire is contained, soon the ceiling temperatures will build to a point where the heat radiation downward will cause all of the combustibles in the room to suddenly flash. The flashed over room fire then immediately becomes a prolific producer of very toxic gases, because there is an oxygen deficiency in the super hot room. These incomplete combustion gases will then spread and kill over a wide area.

Knowing full well the true nature of fire, and the fact that the contents fire was 90% of the problem, while the structural shell itself was no more than 10% of the problem, the fire monopoly rotated the true fire picture 180° and constructed a false image of the fire. In this manufactured fire scenario the structure, not the contents became the key fire problem. Thus was born the cult of the fireproof building.

The Underwriters Laboratory created many unrealistic and often irrelevant tests to support the fairy tale that a non combustible and fireproof structure was man's greatest guarantor of fire life safety. Since the theories were wrong right from the start, of course fire deaths in fireproof buildings remained high. But this was a perfect situation, from the fire monopoly viewpoint; because each major fire produced demands for new fire regulations, and of course, the new regulations were always oriented toward adding further costs to the construction shell, which was the least of the problem.

Ironically, the small compartmented fireproof building was a great concentrator of the heat released from fire, therefore the serious flashover problem was magnified. But this fact was of no concern to the fire monopoly. They solved this problem in the simplest way. They maintained the existence of the flashover phenomenon the best kept secret in fire protection for more than 70 years. The public did not concern itself with the role of the contents fire and flashover, because no one outside of a select circle knew the problems existed.

So in very simple terms, here is the diabolical scheme by which fire was promoted in America to the point where the market for fire products is the best on earth. First, the monopoly established rules by which that great enemy of fire — water, was prevented from being used on the early fire by any efficient method. Better than 90% of the time a small fire was not challenged by any automatic water base suppression sys-

tem, or by any manual fire control system of a practical and efficient nature. This alone guaranteed that a substantial percentage of the fire initiations would grow to a deadly stage.

Next, through improper test procedures, and non valid theories, they directed the vast bulk of the regulations and theoretical solutions to fire away from the true fire problem (which was the contents). In the process they built a multi-billion dollar market in controlled construction products.

Next, they promoted the development of exotic and costly fire suppression systems. These exotic systems often sold for more than 10 times the price of an efficient water base system. And, believe it or not, these exotic systems sometimes had a failure rate no less than 500 times the failure rate of a properly designed water base fire suppression system.

Having cut the very heart out of fire technology, having curbed the best and promoted the least, only then did the fire monopoly don their cloaks of purity, mount up on their white horses, and ride out proclaiming to America that fire is a terrible menace and that we must all work together to curb it. Posters were printed, fire prevention campaigns were launched, citations for housekeeping were awarded, commercials were created, pamphlets were distributed, school children were lectured, fireworks were challenged, wood shingle roofs were denounced, and once a year the clan gathered to tell each other how great and how good they were, and to pass another round of profit making regulations.

The fire services, fire chiefs and fire fighters, were largely excluded from the important committees because, they were told highly technical matters were involved that were far beyond the comprehension of the fireman. But the fire services were otherwise catered to in order to build a market for the codes, and once a year at voting time, the assembly halls were opened wide to welcome firemen free of charge so that, if anyone dared challenge the great wisdom of the carefully selected committees, there would be 10 friendly votes for every challenger.

Thus did the fire monopoly protect and preserve the market place, and make it grow, and use the power of law to force sell inferior systems at inflated prices, while all the time posing as the great saviors of society, humanitarians extraordinary.

I believe that from the time the NFPA and the UL gained control of fire technology, in the 1890s, until today, that the net cost of these self established lawmakers may be more than a trillion dollars, more than one million serious injuries and maimings, and more than 100,000 deaths. I consider the fire monopoly to be a cancer on America, and a fraud of monstrous proportions.

Now the monster is cranking up a new and even more terrible plan. For years they concealed the significance of the contents fire and the flashover phenomenon. But finally they were unable to do this any more, and at least part of the truth was revealed. So, now that the role of the contents fire is finally gaining recognition, the fire monopoly is planning a vast new coup in the fire market place. They are promoting the concept that the contents fire can be controlled, not by promptly extinguishing it, but through elaborate testing and labeling procedures. Note that they still plan to nurture and preserve the early fire, and not allow it to be promptly and effectively extinguished, rather they will regulate the rate of burning and the characteristics of the combustion products so as to produce a "controlled and tolerable" fire.

If they put this new master plan across they will gain vast new powers to regulate almost every article that goes to a home or business. The best part about the plan, from the profiteers viewpoint, is that there is absolutely no way on earth that combustibles can be regulated so as to be producers

of non toxic combustion products.

So if they succeed with this latest scheme to outwit America, fire and fire deaths will continue unabated, and the markets and the profits will continue to grow. This fraud of toxicity control will be so lucrative in terms of research, materials controls, price fixing, and inflated prices that the scheme has gained many supporters. It is after all, sometimes more profitable to love the problem, instead of the solution.

In conclusion, I will leave these thoughts with you. I agree that the Voluntary Standards and Accreditation Act of 1977 is needed. I support it 100%. But I would propose even more. Eight thousand Americans die in building fires each year, and many more than 100,000 are seriously injured from fire. This needless destruction continues even 100 years after systems were developed that could go into buildings at low cost, using available water, and reduce the fire potential of both the building and contents to very close to zero. The planned obstruction of these fire systems, and the improper manipulating of the fire regulations to produce profits at the expense of human life is probably the greatest generally undiscovered fraud of this century. The only man made devastations that have produced greater human damage have been the great wars and the great mad men such as Hitler and Stalin. I believe the U.S. Congress should not stop with the legislation currently proposed, but should follow up with a full scale and thorough investigation of the activities of the fire monopoly.

Finally, I will leave with you a table showing the per capita fire death rate for various countries, including the U.S. In my judgement, the death rate in America is no accident, it required a great deal of hard work.

Table 1
Fire Deaths per Capita for 1972

Country	Fire Deaths per Million Persons
United States	57.1
Canada	29.2
United Kingdom	18.1
Sweden	18.0
Finland	16.3
Australia	14.8
Japan	14.0
Denmark	12.7
New Zealand	9.8
Belgium	6.8
The Netherlands	5.8
France	4.9
Italy	2.9

Source: NFPA (US), Fire Journal, Nov. 1973, p. 51.

PATTON, INC.

6075 Cleveland Avenue
Columbus, Ohio 43229

PATTON REPORT

1980

HOW BUILDING CODES SACRIFICE HUMAN LIFE

America has one of the highest fire death rates in the entire world and to find the reasons why this is so we must look to the building and fire codes. These codes have been directed toward protecting property and financial plans, and in creating and protecting markets for fire protection products, but they have made human life expendable.

DWELLINGS - THE BUILDING IS PROTECTED - THE PEOPLE ARE NOT

To illustrate this disregard for human life, let us look at how the codes deal with the single family dwelling. The fire problem in a single family dwelling is 90% a problem of combustible interior furnishings. Almost all the time, a dwelling fire is a **contents** fire. Just one overstuffed chair has enough heat energy of itself to produce a flashover condition within the home. This is a condition that can wipe out all human life in less than 60 seconds after flashover occurs.

Knowing the tremendous rate of energy release that is associated with the contents fire, what solution have the codes applied? The codes require that the interior be sheathed throughout with *fireproofing* gypsum wallboard so that the **structure itself** may survive the interior fire. Basically, the codes protect the structure; then allow the interior fire to burn uncontrolled.

INSURANCE INDUSTRY BASICS - RANDOM PREDICTABLE LOSSES ARE ESSENTIAL TO THE INSURANCE SYSTEM

To find out where our present building codes come from we must look at the early fire insurance concepts of the 19th century. Insurance is a financial plan by which the insuring company makes profits from fire. Insurance is essentially a tax on the cash flow from those who do not suffer a loss to those who do. Within this framework, a high burn rate produces more insurance profits than a low burn rate. (There is more fish in a large river than in a small stream.)

However, for the insurance system to work there must be *spread of risk*, and the losses must be *random* and *predictable*. When the insurers insured many thousands of homes, theoretically the number that would burn each year would be very predictable (just as it was possible to predict the number of persons who would die per year in life insurance.) However, in the early days of fire insurance, frame houses were built, side by side, block after block, and entire cities were often devastated by conflagrations. Note that when there is an entire city subject to one giant fire the principle of *spread of risk* has been defeated. One fire will destroy far more homes than the actuarial tables predict will be destroyed. Thus, the **excessive** fire - the conflagration fire - overwhelms the insuring system and puts the insurer out of business.

Summarizing, an insuring system;

1. Requires losses, otherwise insurance would not be purchased. Losses are **essential** to the insuring system.
2. Cannot tolerate excessive size losses. Too big losses are bad for the system.

BUILDING CODES - AN INSURANCE SOLUTION

The early fire insurers found it necessary to prevent conflagration size fires — otherwise they would go out of business (as so many did). But, from the insurers viewpoint there was no need to prevent the normal occurrence of *small* random fires. Such fires were essential to feed the insuring system. The insurers therefore developed the early building codes and founded these codes on the principle of *subdivision of risk* (also known as compartmentation). Here's how it works.

When the early cities contained block after block of frame dwellings, entire cities burned. But, today, in New York City, Baltimore, Washington D.C. and other cities of the east, you will find blocks of *row houses*. The key difference is that between each two buildings today, the codes require a **FIREWALL**.

Note, that this is a beautiful *solution* to fire from the insurers viewpoint. The well placed wall prevents the fire from spreading one unit to another, thus the conflagration is prevented.

But, any one unit may continue to burn at its *normal* rate. Thus, the insuring system is well fed.

Having *solved* the conflagration problem, nothing further of any great consequence was done to solve the *interior* fire problem. Individual units, and people, went on burning at the same old rate.

In the west, rather than firewalls, clear space usually separated the structures. Incidentally, in the west, note that the wood shingle roof and the conflagration potential continues to concern the insurers more than the interior fire — which is the fire that kills the occupants.

THE ROOTS OF THE HIGH RISE (AND OTHER) PROBLEMS

Incredibly, this concept of *subdivision of risk* has been carried forward by the codes into hospitals, nursing homes, apartments, hotels, penal institutions, sanatoriums, and even the high rise building. A high rise building, for example, is subdivided floor by floor with fire resistant slabs and stairwells, so that any one fire will burn out only one floor at a time.

PATTON REPORT 1980

This limits the dollar loss to an acceptable amount for the insuring system. However, from a human viewpoint, smoke from a one floor fire in a high rise will normally block the stairways, and then spread upward, making conditions very marginal from a human viewpoint, to say the least.

The same condition exists in hotels, hospitals, apartment houses, etc. The one compartment size fire is allowed by the codes as a normal occurrence. But each such compartment fire is a danger to life throughout the complex because fire walls (with doors and ducts running through the walls) have never been a stop against toxic gases.

Essentially, our building and fire codes have accomplished two things:

1. Prevented conflagrations
2. **Guaranteed** a continuity of the small and random fire.

It is the small fire that is allowed by the codes that produces more than 90% of our building fire deaths and injuries.

THE FLASHOVER FIRE

Flashover is the most devastating phenomenon that occurs in a building fire.

The fire code authorities have promoted a train the people to get out of the building type of a solution to fire. Throughout this whole campaign, which has gone on for many years, is the implication that fires build slowly, are discovered early, and that there usually is time to enact the emergency procedures.

What the public was not told, however, is that fire can grow undetected and inconspicuously to flashover. Then, suddenly and explosively things come apart with such devastating speed all the plans go out the window (and sometimes the people do too).

Until Patton publicized this phenomenon it was one of the best kept secrets in fire protection. There is remarkably little in the way of articles discussing this phenomenon in fire publications and journals during years prior to the Patton Reports (that dealt so extensively with this phenomenon).

There was a good reason for this. The flashover phenomenon knocks the train the people to survive the fire plan into a cocked hat. (Write to Patton for more information about the flashover phenomenon).

FIRE CODES SUSPECT

The fire codes that are most extensively used in the U.S. are produced by a non government, self styled authority on fire safety called the National Fire Protection Association, which was founded by the insurance industry in the 1890's. This organization produces codes that, when adopted by state or local government, force sells fire safety products to the public. Organizations that market the products are given voting seats on the committees that prepare codes. Obviously, they produce codes to favor their own products whenever possible.

For example, one code requires buildings of certain types, including high rise buildings and many hospitals, to install 1½ inch fire hoses throughout. The price of this hose, per station, runs \$300 - \$400. This hose is so large and so stiff that it is best handled by two trained firemen, yet it is placed there to be used by the amateur, the nurse, the tenant. Very rarely is it used effectively.

Why isn't a ½ to 1 inch flexible hose specified by the code? People can handle hose of this size and it is extremely effective against fire. Can it be because such hose can be purchased — non labeled — at the local hardware store for under \$20.00?

The Federal Trade Commission is currently investigating our fire code making process, and possible abuses within the field. For more information write Wally Lovejoy, FTC, Washington, D.C.

BEST SOLUTION DENIED THE PUBLIC

The fire sprinkler system historically, when electrically supervised by a central station or direct fire department hookup, has produced a 99.9% reliability of fire control. The fire sprinkler system operates before deadly flashover condition develops.

In sprinklered buildings in Australia there have been five — only five — fire deaths in 87 years. In America, in non-sprinklered buildings, about 8,000 die each year.

The fire sprinkler system design criteria has been controlled by the National Fire Protection Association. The sprinkler code is most adverse with respect to protecting small properties. Note that small buildings do not need protection from an

insurance viewpoint. They are at an insurable size as a single homogenous risk in insurance parlance.

Has a near 100% solution to fire been knowingly and cleverly denied the public by careful manipulation of the codes? This is one aspect of the codes being investigated by the FTC. In any event the codes have solved the fire problem by requiring large fire risks be divided into small fire risks, and having accomplished this more than 90% of the small buildings in America have not been provided with protection against contents fire.

SUMMARY

1. Before the turn of the century shrewd fire insurance executives developed a basic plan to deal with the fire problem. This plan which was based on compartmentation accomplished two things.

- A) Conflagration size fires were prevented, and
- B) Small random fires were allowed to continue at a normal rate to feed the insuring system.

2. Human fire safety therefore became dependent on getting out of the building before the fire became deadly. Emergency plans were promoted as a claimed solution to this problem. But the code makers did not level with the people and explain that the flashover phenomenon would often make the orderly execution of the procedures impossible.

3. The fire sprinkler system had a known ability to control the interior fire with a 99.9% reliability. This represented close to a 100% cure of the life safety problem in buildings. However, the code makers structured the sprinkler code to make such systems impractical for small buildings and unduly expensive in compartmented buildings. Most such buildings remain unprotected to this day.

4. The codes proliferated and a vast multi-billion dollar market in controlled fire safety products evolved. Those who sold the products were given seats on the code committees. The high burn rate in America guarantees a ready market for the products.

5. Ninety percent of the fire deaths and injuries that have occurred from building fires in this century have their roots in the compartmentation (subdivision of risk) plan for dealing with fire. The building codes themselves guarantee a continuity of the small random fire and a continuity of a high fire death rate in America.