

Fires of the Eighties — Are They Different?

A popular allegation—that today's fires contain more lethal gases or burn "hotter and faster" than those of the '40s because of the greater amounts of synthetics involved—is not supported by fact. Carbon monoxide, the proven killer in fires, is just as much of a problem in fires now as it was then. The 1941 Handbook of Fire Protection states:

"A great majority of fire deaths are believed to be due to the effects of smoke and hot gases produced in fires. Carbon monoxide...and various other poisonous gases may be generated in fires involving materials ordinarily found in buildings."

Eight years earlier a study by the National Fire Protection Association stated:

"Every year in the United States about 10,000 people lose their lives because of fires. It has been observed and commented upon that many of these victims are not burned but succumb to the effects of 'smoke' and gas."

(G.E. Ferguson, "Fire Gases," NFPA Quarterly, Vol. 27, No. 2, p. 110, 1933.)

U.S. Fire Death Rate Declining

In 1939, the U.S. population of approximately 132 million people suffered 10,000 deaths in fires, a death rate of 76 per million people. By 1980—after our population almost doubled—fire deaths decreased to 6,500 people, the death rate dipping to 29 per million. Yet, at the same time, the fuel load content (amount of combustible materials) present in buildings increased dramatically.

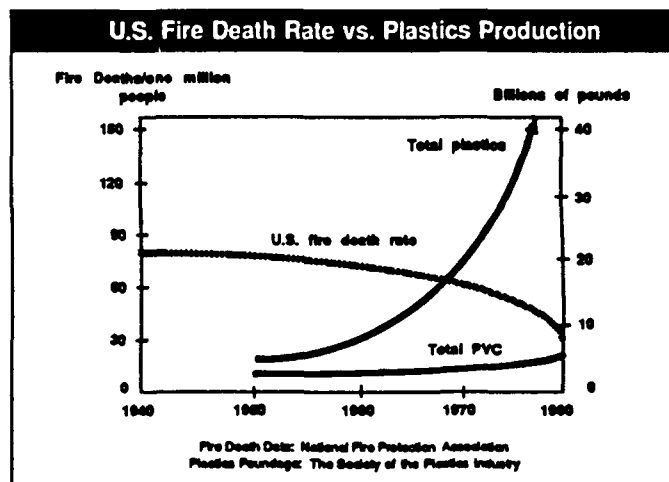
During this 40 year period—when the fire death rate dropped 62 percent—use of plastic materials also grew astronomically. Plastics were not commercial products in the U.S. in 1933. During 1952, only two billion pounds of plastics were consumed in the U.S. By

1980, annual plastics production topped 37 billion pounds—almost a 20-fold increase since 1952.

Opponents of plastic materials want people to believe that removing synthetics from our buildings will eliminate most of the hazards of a modern fire. But the facts are clear: sharply increased use of plastics has certainly not made the fire fatality problem worse.

Why People Die in Fires

What is common to the tragedies listed below? In each, conditions existed which allowed a fire to become very large very quickly. It does not matter what is burning—wood or plastics—if conditions are present that allow rapid fire growth, tragedy results.



- Social factors stand out as strong contributors to fire deaths.

Our habits as consumers have changed since 1950. Our houses are larger. They are carpeted and contain more furnishings. In short, they are filled with combustibles. They are built with large open spaces through which fire and

—over—

smoke spread easily. They are better insulated and hold in more heat—whether it is at 70°F or 1200°F (the temperature that typically can be reached in a fire). Also, due to the increase in the number of families where both adults work, many homes stand vacant during the day. Fires that start in these homes burn longer before they are reported. In addition, according to National Fire Protection Association (NFPA) estimates, one-third of all fire deaths in the United States are due to fires started by cigarettes. Most of these fires start in upholstered furniture or bedding in single homes or apartments. Over two-thirds of the deaths occur in fires which start at night, when most victims are asleep.

Alcohol consumption increases the chance of dying in a fire. The senses are dulled and resistance to toxic fire gases—such as carbon monoxide—is reduced. The ability to act quickly, decisively and correctly is inhibited. If intoxicated, people are less likely to be aroused by smoke or fire, and thus, less able to escape.

- **Failure to comply with building codes is evident in fires with large loss of life.**

Violations of code requirements have occurred in almost every fire with large loss of life. An outstanding example is the MGM Grand Hotel fire in Las Vegas, Nevada, on November 21, 1980. In that fire, in which 85 persons lost

ways, improperly designed heating, ventilating and air conditioning systems and smoke spreading through elevator hoistways.

- **Lack of detection and suppression systems contributes to fire deaths.**

Fatal fires often start during early morning hours (about 40 percent of fires start between midnight and 4 a.m.) when people are sleeping soundly. Effective detection and alerting systems are especially important and are the most promising solution to the fire problem today. These systems include:

Smoke Detectors. In 1976, less than five percent of the homes in the United States had a smoke detector. Today, as a result of support by the fire community and public interest groups, over 67 percent of all homes have one or more smoke detectors. A review of 699 fires in residences protected with smoke detectors showed that detectors reduced the potential for severe injury or death in 90% of the fires that occurred when all occupants were asleep.

Sprinkler Systems. Fire safety experts believe widespread use of sprinklers in homes could be the single most important factor in reducing loss of life and property from fires. New, fast-response sprinkler systems using plastic pipe have been developed as a result of research sponsored by the U.S. Fire Administration. In a series of tests, these systems reduced fire property losses by 85 percent and provided a life safety environment by controlling toxicity levels and temperature in the fire environment. The new systems are less expensive than traditional sprinkler systems, which puts them within reach of most homeowners.

What's the Solution?

Experts from government and the fire service community agree that greater emphasis should be placed on fire safety education and on the increased use of detection and suppression systems. The wholesale removal of plastics from our environment is not the answer. In fact, many plastic materials that are used in construction and furnishings actually can help stop fires from starting and from spreading.

Fire prevention programs which focus on these approaches will prove the most effective way to reduce the current U.S. fire death rate.

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**Fire Related Deaths in
Buildings of Public Assembly**

Date	Construction	Number of Fatalities
1940	Rythm Club	207
1942	Cocoanut Grove Night Club	492
1946	LaSalle Hotel	61
1946	Winecoff Hotel	119
1977	Beverly Hills Supper Club	165
1980	MGM Grand Hotel	85
1980	Steuffers Inn, Harrison, NY	26
1981	Las Vegas Hilton Hotel	8
1982	Westchase Hilton Hotel	12

their lives, some of the factors cited by the NFPA that contributed to the loss of life were: lack of automatic fire extinguishment (no sprinklers in the part of the building where the deaths occurred), unprotected vertical openings, substandard enclosure of interior stairs, lack of smokeproof towers and exit passage-