

The Effectiveness of Portable Fire Extinguishers:

An Overview 1976 – 2010



THE MARK OF
PROFESSIONAL SERVICE

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The Effectiveness of Portable Fire Extinguishers

The Effectiveness Surveys

Portable Fire Extinguishers Work!

Time and time again, portable fire extinguishers have proven to be the most effective means of defense against fires of limited size. The National Association of Fire Equipment Distributors (NAFED) has conducted four extensive surveys since 1976 to measure the effectiveness of fire extinguishers when used by building occupants. Statistical information from these surveys is included in this report.

The data collected during these surveys shows that portable fire extinguishers were effective in extinguishing fires **95%** of the time. In many instances where there was not complete extinguishment by a fire extinguisher, the extinguisher was successful in controlling the fire until the arrival of trained fire fighting personnel.

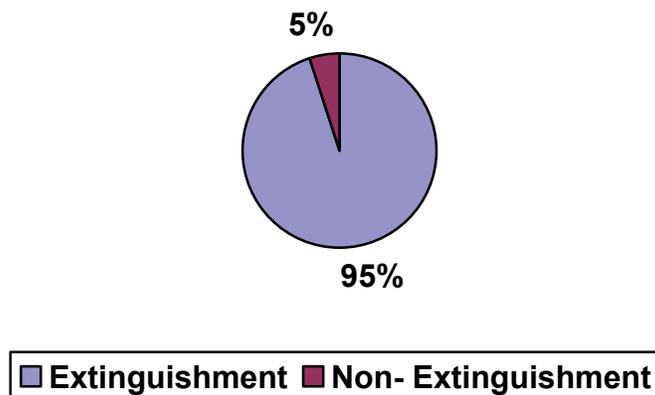
The data for these surveys was collected by the fire equipment distributors who recharged the fire extinguishers after they were used. The people that used these extinguishers were ordinary “civilians” and were not trained fire fighting personnel.

The survey forms that were utilized for the data collection varied slightly, due to the differences in the data collection questions that were asked over the years.

NAFED only collected the data; all tabulation of the results was conducted by independent third party research firms.

34 Years of Data 1976 - 2010

Success Ratio 1976 - 2010



Started in 1976 and still ongoing, NAFED has been collecting data on the effectiveness of portable fire extinguishers. The collected data has been tabulated and published in four reports: 1979, 1985, 1996 and 2010. The combined results of the 34 years of data are based on the performance of 32,756 fire extinguishers used on 13,453 incidents. **Of the 13,221 fire incidents reported, portable fire extinguishers successfully extinguished 12,505 fires (95%).**

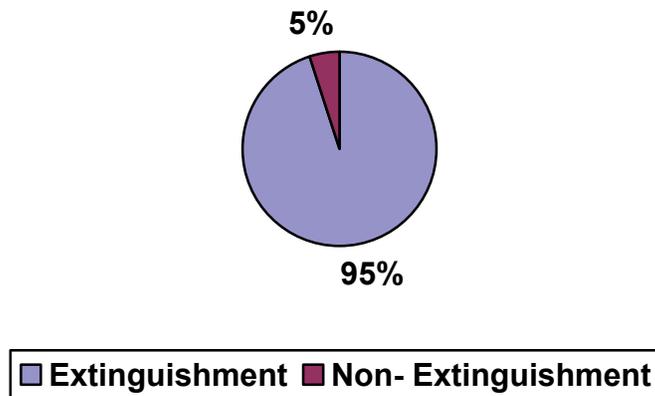
The type of fuels involved and the types of occupancies varied over the years and are detailed in the specific reports.

2010 Survey Results

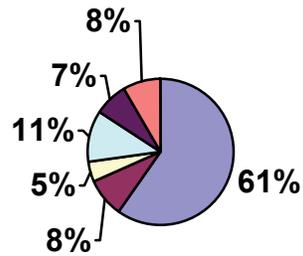
NAFED's latest survey regarding the effectiveness of portable fire extinguishers was completed in early 2010. The survey is based on the performance of 10,432 extinguishers on 4,633 incidents of which 4,401 were fires. **Of the 4,401 fires reported, portable fire extinguishers successfully extinguished 4,216 fires (95%).** A single fire extinguisher was used to extinguish the fire in 3,339 reported fires (72%).

The most common types of fuel that were involved in these fires were Class A (47%), Class B (35%), and Class C 14%. The leading occupancies involved were industrial (53%), business (19%), and vehicle (9%).

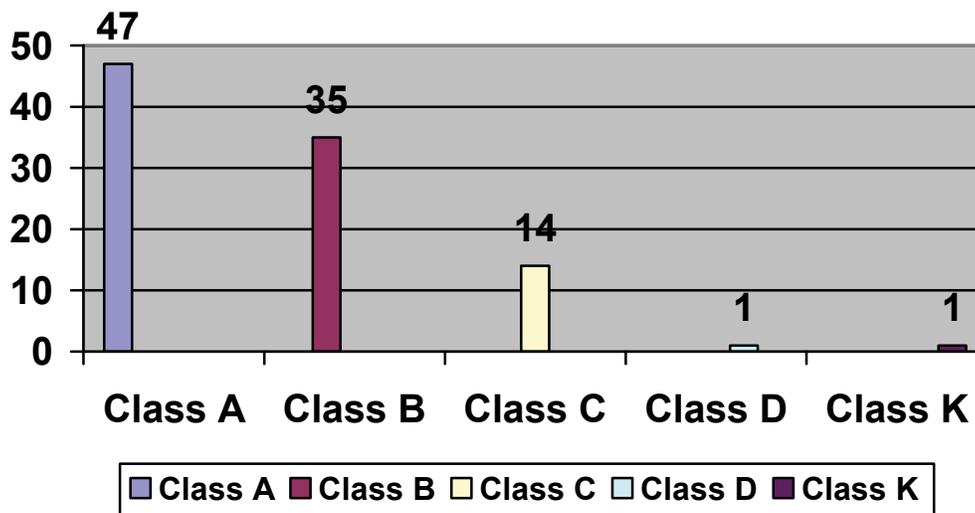
Success Ratio 2010 Report



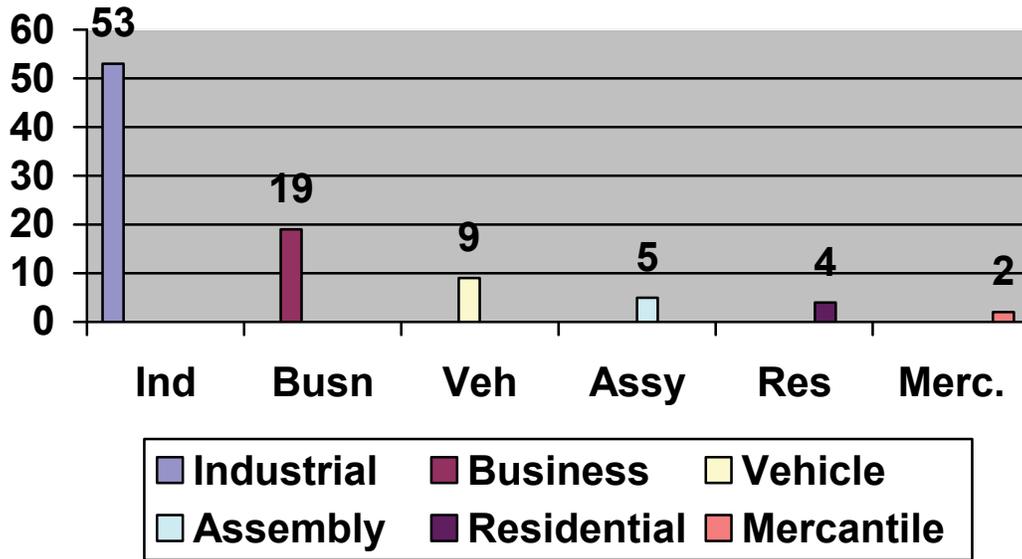
Reason for Non-Extinguishment 2010 Report



% Fire Type 2010 Report



% Occupancy Type 2010 Report

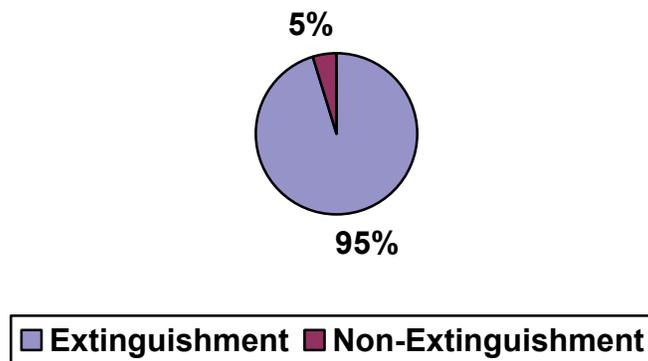


1996 Survey Results

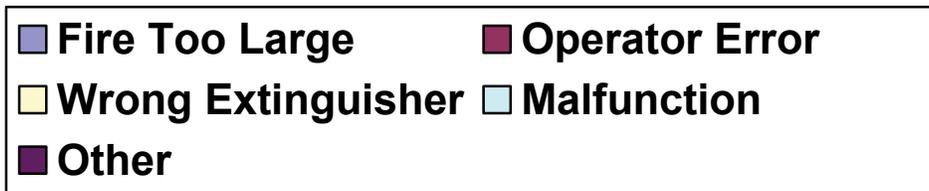
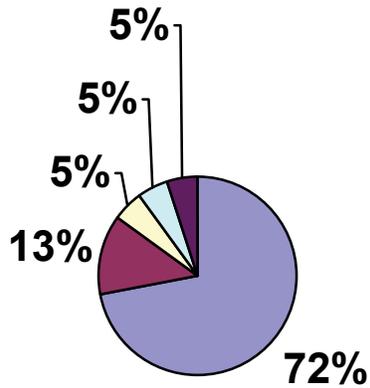
In 1996 NAFED completed a survey to update the statistics regarding the effectiveness of portable fire extinguishers. The survey is based on the performance of 5,246 extinguishers on 2,592 incidents of which 2,267 were fires. **Of the 2,267 fires reported portable fire extinguishers successfully extinguished 2,161 fires (95.3%).** A single fire extinguisher was used to extinguish the fire in 2,088 reported fires (92%).

The most common types of fuel that were involved in these fires were Class A (46%) and Class B (45%). The leading occupancies involved were commercial (28.5%) and industrial (24.9%).

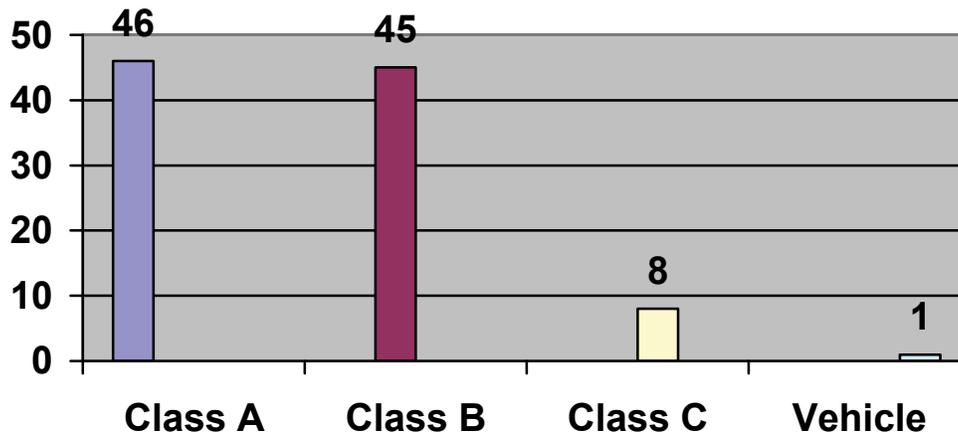
Extinguisher Success Ratio 1996 Report



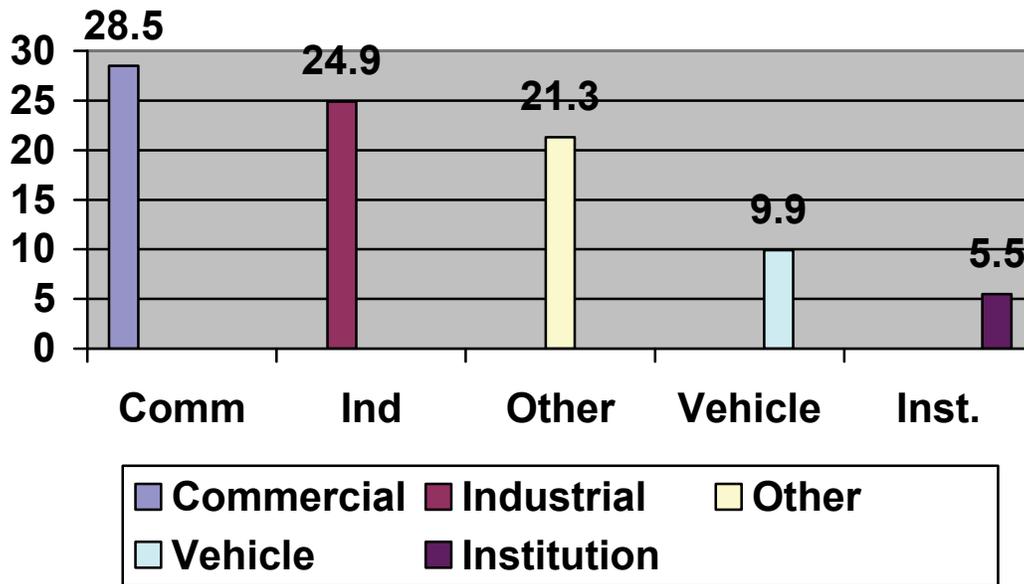
Reasons for Non-Extinguishment 1996 Report



% Fire Type 1996 Report



% Occupancy Type 1996 Report

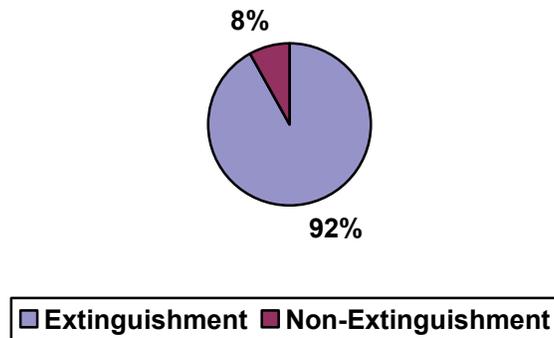


1985 Survey Results

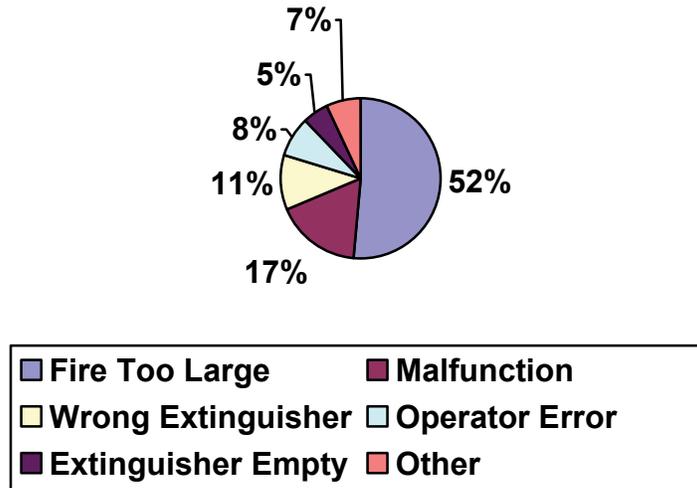
In 1985, NAFED conducted a brief survey to monitor the effectiveness of portable fire extinguishers. This survey is based on the performance of 2,987 fire extinguishers on 1,153 fires. **Of the 1,153 fires reported, portable fire extinguishers successfully extinguished 1,055 fires (91.5%).** A single fire extinguisher was used to extinguish the fire in 561 reported fires (48.7%).

This survey report did not record information regarding the type of fuel or the type of occupancy.

Success Ratio 1985 Report



Reason for Non-Extinguishment 1985 Report



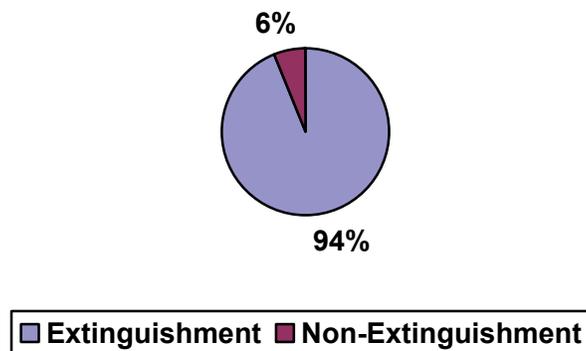
1979 Survey Results

In 1976, the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), asked NAFED to perform a limited base survey on the use of portable fire extinguishers in industrial, commercial, and institutional work situations. The scope of this survey included unreported fires extinguished by on-the-job workers. The survey results were published by NAFED in 1979.

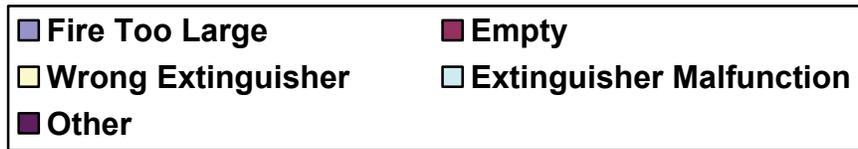
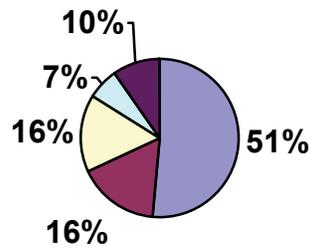
This survey is based on the performance of 14,091 fire extinguishers on 5,400 fires. **Of the 5,400 fires reported, portable fire extinguishers successfully extinguished 5,073 fires (94%).** A single fire extinguisher was used to extinguish 3,148 fires (58.3%).

The types of fuel that were involved in these fires were Class A (16%), Class B (42%), and Multi-class (34%). NAFED estimated that 60% - 70% of the Multi-class fires were Class A & B. The leading occupancies involved were commercial (45%) and industrial (41%).

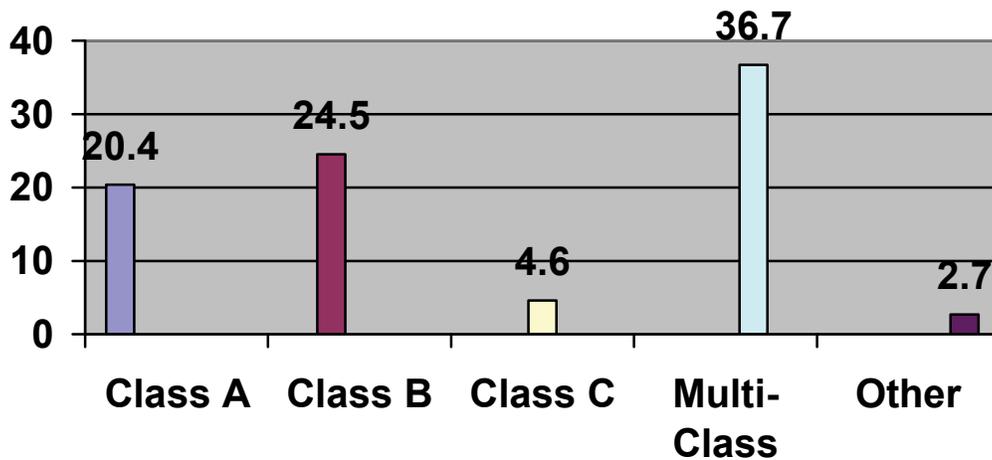
Success Ratio 1979 Report



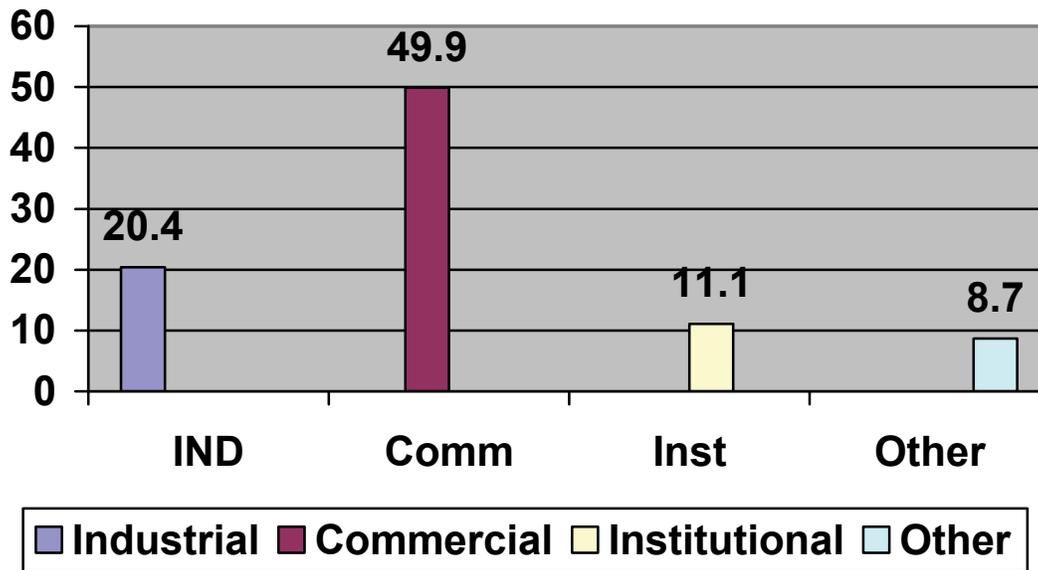
Reason for Non-Extinguishment 1979 Report



% Fire Type 1979 Report



% Occupancy Type 1979 Report



Non-Extinguishments

In all of the surveys the leading cause for non-extinguishment is the “fire was too large”. The surveys were based on a definite “yes” or “no” answer. A complete extinguishment was “yes”, anything less was a “no”, which implies a failure. The survey form did not have a category that asked if the fire was controlled by the fire extinguisher usage. The reason for this is the term “control” is a relative term, left to the interpretation of the individual.

The reporting systems used (except for the 1985 survey) did allow for voluntary hand-written comments where fire extinguishers were used to “control” the fire until arrival of the fire department and in several instances the fire extinguishers were used to save lives and effect rescue.

Fire Department Involvement

The most alarming area that the surveys highlighted is the lack of reporting fire occurrences. In both the 1979 and 1985 surveys, the fire department was only called for 13% of the reported fires. In the 1996 survey, the fire department was called in 24% of the reported fires. However, in the 2010 survey the number dropped to 17% of the time. This is an area that has to be addressed through education of the public.

These results are not unique to NAFED surveys. A 1978 publication by the U.S. Department of Commerce stated that about 90% of fires in households are not reported based on their survey of 33,000 fires.

Due to the reluctance of individuals to report extinguished fires we may never have an accurate account of just how many fires are successfully extinguished by portable fire extinguishers.

Conclusion

Fire extinguishers have proven their effectiveness in extinguishing fires, saving lives, and protecting property from fire. Most uses of fire extinguishers are never reported because users do not want the authorities (fire departments and insurance companies) to know that there was a fire. It appears that because the effectiveness of fire extinguishers is not generally known, there are those who think they are not required.

Every effort should be made to ensure that, as a minimum, fire extinguishers are located and maintained in accordance with the NFPA standards.

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