Fire Department

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Dedication

This report is dedicated to two primary groups of people:

First, to all the people who have suffered a significant loss as a result of the incredibly destructive power of fire. How many of our children, elderly, community members, and firefighters could have been saved and would still be alive today to contribute to our communities, if the use of built-in protective systems had gained a much wider acceptance and use throughout our country?

Second, to all the fire service professionals throughout the country who have dedicated their lives to making our communities a safer place to live. Throughout the fire service there are thousands of special individuals who work every day to ensure the safety of those they serve. This includes the development of new safety and fire codes, providing the public with safety education and information, conducting compliance inspections for our community schools and businesses, and responding to an incredible number of requests for emergency medical and fire assistance. It is important to remember that all of these varied community safety activities have had a dramatic effect on reducing the negative impact of the emergency situations we experience in our communities. Special thanks must go to those leaders who have shown the commitment and courage to challenge the status quo approaches of traditional fire protection measures and aggressively expand into the areas of true customer service, proactive fire prevention, and built-in fire protection.

This document and information could not have been completed and distributed without the assistance of the Home Fire Sprinkler Coalition, the National Fire Protection Association, the City of Scottsdale, and Rural/Metro Fire Department.

Jim Ford
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Executive Summary

It is interesting to note that nearly 20 to 25 years after some preliminary fire testing and the general concept of residential sprinkler protection began to materialize, the debate surrounding built-in fire protection for residential properties continues to rage on as intensely as ever. The records are very clear showing how the use of automatic sprinkler systems in commercial and residential properties, has saved thousands of lives and untold millions of dollars in actual fire loss. This type of proactive fire protection has dramatically reduced the suffering individuals and communities would have experienced as a result of the destructive power of fire.

It has been over fifteen years since the decision to mandate the widespread use of automatic sprinkler protection became a reality in the City of Scottsdale. The documented benefits the city has experienced have been examined by numerous fire service professionals and community leaders from across the United States and around the world. In Scottsdale, the use of residential sprinklers is no longer an experiment, it is a proven method that has been used to dramatically improve the level of fire protection in the community.

This update will illustrate the success that can be experienced by a growing community with progressive leaders who had the foresight and courage to require built-in, automatic sprinkler protection for all the newly constructed occupied structures in their jurisdiction. The report will take a detailed look at the history, philosophy, successes, failures, challenges and possible future of using automatic sprinkler protection as a tool to assist with meeting the fire and life safety mission of the community. The successful experiences, which have occurred in Scottsdale, would not have happened without numerous improvements in the technical aspects of residential design, constantly reviewing and evaluating the progress, or without the continued support from the local political leadership.

The benefits have been numerous. The civilian fire fatality rate has been reduced by a minimum of 50% with at least thirteen lives saved as a result of built-in sprinkler protection. In this community, millions of dollars in fire loss and the associated negative business interruption activities have been avoided. As the cost of construction continues to increase, the difference in the fire loss comparisons between a protected and non-sprinkled property becomes more dramatic. The average loss for a fire incident in a building protected with an automatic sprinkler system was $3,534, while over the last three years, the average loss for a working structure fire incident without automatic sprinkler protection was $39,672. One or two sprinkler heads controlled or extinguished the fire in 92% of the incidents. Calculations indicate that on actual structural incidents approximately 341 gallons of water was used on fires with sprinkler activations, compared to an estimate of 2,935 gallons of water for the same incidents, they would not have had sprinkler protection. This statistic proves that a small amount of water applied early during a fire incident is much more effective than the much larger amounts that are typically flowed by firefighters. The installation impact and direct costs of the system are no longer major obstructions to acquiring this built-in protection. In residential properties, several technical improvements have allowed the installation cost to average between $0.55 and $0.75 per square foot for typical Scottsdale homes and $0.90 to $1.20 for custom home installations. This is usually less than 1% of the total cost of the home and has not caused a negative impact on the development or slowed the construction of new homes in the community.

As of January 1, 2001, the City of Scottsdale had over 39,000 single-family homes with automatic sprinkler systems. In addition, another 19,000 of the community's multifamily living units are also protected. In this community of 223,000 people, over 53% of all the residential units are currently protected with automatic sprinkler systems. It is estimated that in January of 2006, twenty years after the adoption of the original ordinance, the City of Scottsdale will have more than 49,000 single family residential properties and over 85% of all the commercial structures protected with built-in, automatic fire sprinkler protection.

On three separate occasions, various departments of the federal government have initiated reviews of the nation's fire problem and made written recommendations for improvement. The initial review occurred in 1973 by the National Commission of Fire Prevention and Control and produced the original "America Burning" document. The report generated was a landmark document that called for a dramatic shift in the focus of the fire service and improvements in the training, research capabilities and methods used to deliver emergency and life safety protection for a community. A follow-up evaluation occurred in 1987 when the U.S. Fire Administration and the Federal Emergency Management Agency conducted a workshop on America Burning Revisited. The document produced made additional comments about the nature of the current U.S. fire problem and assessed the progress of the fire service since the original 1973 America Burning Report. In early 2000, the U.S. Fire Administration conducted the most recent evaluation. This report titled "America Burning, Recommissioned" once again evaluated the status of the fire problem in the United States and the progress made as a result of the two previous reviews. In addition, several comments, findings and recommendations were made. One of the most telling comments made in the 2000 document stated, *"Had past recommendations of America Burning and subsequent reports been implemented, there would have been no need for this Commission."*

The debates occurring today are primarily political. There are many technological answers available to address the early questions about design, installation, cost effectiveness, and quality of materials. The remaining issues cannot be solved by the fire service alone. Without the support of additional major stakeholder groups like city and county managers, local policy makers, mayors, architects, researchers, the insurance industry, engineers, the automatic fire sprinkler industry, and even the general public, there is little reason to believe there will be any dramatic changes in the annual losses that are suffered from fires.

The City of Scottsdale fosters innovation, often challenges the traditional ways of providing quality service for the community, and constantly seeks to maintain a high standard of living for its citizens. Many of the guidelines and recommendations that were identified in the "America Burning" series of reports have been implemented and have been in effect in this community for many years. Without the vision and continued support of the local community leaders, the success that the City of Scottsdale has enjoyed over the first 15 years of this ordinance would not have been possible. The courage to objectively evaluate and dramatically change the approach to providing emergency service cannot be understated. This commitment to community protection (and the overall community risk reduction efforts) has resulted in the City of Scottsdale becoming one of the most fire safe communities in the nation.

"The cornerstone of the Scottsdale Fire Prevention Program is the installation of fire sprinkler systems in all commercial and residential units. This has controlled and will continue to control the amount of fire risk in the community. The sprinkler program, coupled with an active inspections program, provides the citizens of Scottsdale with a higher degree of safety than is available in most communities"

University City Science Center;
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