HOME FIRE PROTECTION

FA 43
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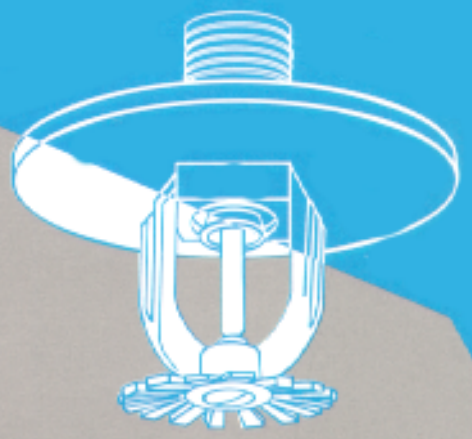
Residential Fire Sprinkler Systems



Federal Emergency Management Agency
U.S. Fire Administration

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HOME FIRE PROTECTION

Residential Fire Sprinkler Systems

SPRINKLER SYSTEMS IN INDUSTRY

Schools, office buildings, factories, and other commercial buildings have benefited from fire protection sprinkler systems for over a century. To prevent investments in buildings and machinery, the textile mills in New England began using sprinkler systems over 100 years ago following a series of devastating fires which claimed many lives and destroyed entire businesses.

SPRINKLERS IN HOMES

But what about our homes? Although we protect our business from fire, what actions do we take to protect our families, our homes, and our possessions from fire? Millions of Americans have installed smoke detectors in their homes in the past few years, but a detector can only alert the occupants to a fire in the house...it cannot contain or extinguish a fire Residential sprinkler systems can!

SPRINKLERS-THE SOLUTION

Fires in American homes have taken a high toll of life and property.
Preliminary
1996 findings:

4500 Deaths
Over 25,000 Injured
Over $8 Billion In Property Destroyed

Studies by the Federal Emergency Management Agency's United States Fire Administration indicate that the installation of residential fire sprinkler systems could have saved thousands of lives; prevented a large portion of those injuries; and eliminated hundreds of millions of dollars in property losses.

WHAT ARE HOME FIRE SPRINKLER SYSTEMS?

Using quick response sprinklers and approved piping, homes can be built or even remodeled to include low-cost automatic sprinkler systems connected to the domestic water supply.

Sprinkler systems offer advantages to the homebuilder:

- A low-cost reliable safety option that would attract many buyers.
- Trade-offs between sprinklers and code requirements that can result in lower construction costs, more units per area of land, etc.

For homeowners, the advantages include assurance of a safer environment for their families, protection of their investment and irreplaceable family possessions, and lower insurance rates.

ADVANTAGES OF NEWLY DESIGNED HOME SPRINKLER SYSTEMS

Fast Response

Residential sprinklers, listed by Underwriters Labs, are now available. They are designed to respond to a fire much faster than currently available standard commercial and industrial sprinkler systems. The new home sprinklers react automatically to tires more quickly because of their improved sensitivity.

Low cost

At the present time, cost of a home sprinkler system is targeted at approximately $1 .OO per square foot in new construction. It is hoped that the cost will decrease as the use of home fire protection grows. It is also possible to retrofit existing homes with sprinkler systems.

Small Size

For home systems, the sprinklers will be smaller than traditional, commercial, and industrial sprinklers, and can be aesthetically coordinated with any room decor.

Minimal Installation Work

When homes are under construction or being remodeled, a home sprinkler system will require minimal extra piping and labor.

Low Water Requirement

These systems will require less water than the systems installed in industrial or commercial establishments and can be connected to the domestic water supply.

Piping Requirements

In addition to metallic pipe, the use of plastic pipe has brought down the cost of installation in new construction and the retrofit of existing structures.

Some notable successful applications of residential sprinklers and. approved piping include:

- Marriott Hotels
- Bachelor Officers Quarters Ft. Meyers, VA
- Cobb County, GA

A GROWING NUMBER OF COMMUNITIES PROMOTE HOME FIRE SPRINKLERS

The fire loss in this country in residential occupancies is catastrophic. Manual fire fighting methods are not the answer The way to attack the problem is to limit the fire growth where it occurs in dwellings. We have the technology to do that.

Residential Automatic Sprinkler Systems. Ordinance No. 745; Adopted May 28, 1969; by the San Clemente, California City Council

Proposition 13 was a major factor in promoting the ordinance. There is also a shift within the fire service toward more fire prevention and less suppression emphasis. San Clemente and Corte Madera, California were some of the first communities in the United States to enact a home sprinkler ordinance. Other communities that have initiated or plan to initiate residential sprinkler ordinances include:

- Livermore, California
- Sarasota, Florida
- Long Grove, Illinois
- Chapel Hill, North Carolina
- Germantown, Tennessee
- Cobb County, Georgia
- Scottsdale, Arizona
- Altamonte Springs, Florida

TEST YOUR HOME SPRINKLER SYSTEM'S I.Q.

Here are five statements about home sprinkler systems. Are they true or false?

1. When one sprinkler goes off, all the sprinklers activate.

   False! Only the sprinkler over the fire will activate. The sprinkler heads react to temperatures in each room individually. Thus, fire in a bedroom will activate only the sprinkler in that room.

2. A sprinkler could accidentally go off, causing severe water damage to a home.

   False! Records, which have been complied for well over 50 years, prove the likelihood of this occurring is very remote. Furthermore, home sprinklers will be specifically designed and will be rigorously tested to minimize such accidents.

3. Water damage from a sprinkler system will be more extensive than fire damage.

   False! The sprinkler system will severely limit a tire's growth. Therefore, damage from a home sprinkler system will be much less severe than the smoke and fire damage if the fire had gone on unbated or even the water damage caused by water from firefighting hose lines.

4. Home sprinkler systems are expensive.

   False! Current estimates suggest that when a home is under construction, a home sprinkler system could cost less than 1% of the total building price.

5. Residential sprinkles are ugly.

   False! The traditional, commercial-type sprinklers as well as sprinklers for home use are now being designed to fit in with most any decor.

SPRINKLERS ARE A GOOD INVESTMENT FOR HOMEBUILDER'S

New homes may be built further away from a fire station if they have approved sprinkler systems.

Home sprinkler systems offer both safety and financial advantages to home buyers, a rare combination.

SPRINKLERS ARE A GOOD INVESTMENT FOR THE HOMEBUYER

- Fire breaks out in one of every 10 American homes each year, according to the U.S. Fire Administration. To the homebuilder, this fact means that a large share of potential customers now have knowledge of the terror and destruction caused by fire.

- Families with children, senior citizens, and handicapped members have special fire protection needs. Home sprinkler systems provide added protection for these people.

- In case of a home fire, firefighters will have less risk of injury or life loss since they will be fighting a fire of less intensity.

- Allocation of scarce community resources may be improved with the adoption of home sprinkler technology.

- Communities will be able to make better utilization of available land and thereby increase their tax base.

INSURANCE DISCOUNT

Insurance from homeowner underwriters will vary depending on type of coverage. The discounts now range between 5-15%, with a projected increase in available discounts.

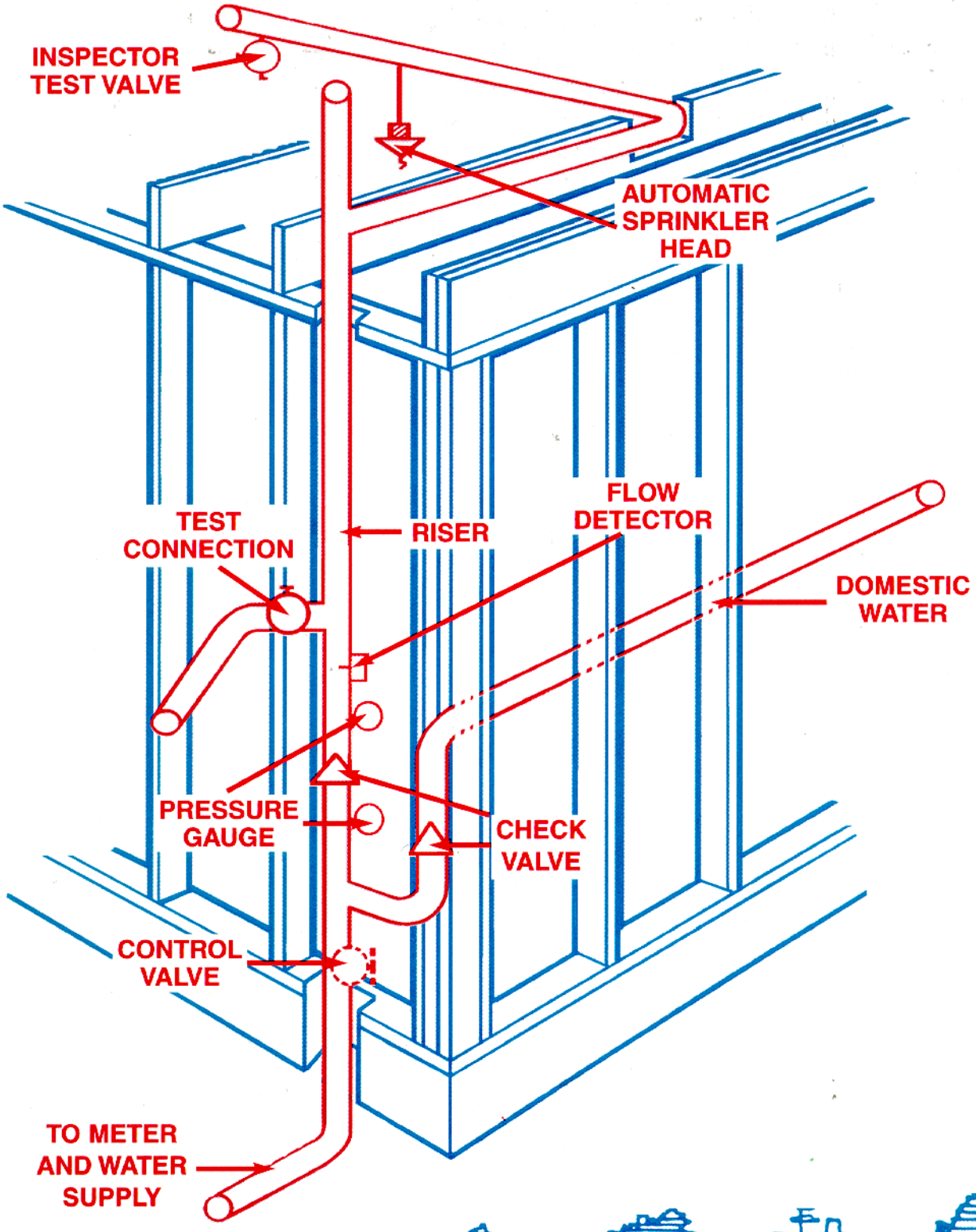
THE MOVE TOWARD HOME SPRINKLER SYSTEMS

The U.S. Fire Administration's research in home fire sprinkler systems successfully focused on systems that would be low cost, fast acting and reliable, As a result, residential fire sprinklers have gained increased acceptance.

In November 1980, the National Fire Protection Association adopted the NFPA 13D Residential Sprinkler installation standard. The standard is based on technical data from the comprehensive full-scale fire tests which were sponsored by the U.S. Fire Administration.

In 1994, the National Fire Protection Association added Chapter 5 (Limited Area Dwellings) to NFPA 13D. This chapter applies to one-and two-family dwellings including manufactured homes.

SPRINKLER PIPE DIAGRAM



RESIDENTIAL SPRINKLER PROGRAM

Dedicated to reducing this Nation's staggering loss of life and property caused by fire, the Federal Emergency Management Agency's U.S. Fire Administration has joined with private industry and the fire service to advance the development of residential sprinklers. Since 1976, the Fire Administration has promoted research studies, development and testing, and demonstrations of residential sprinkler systems.

Working with the US. Fire Administration are:

- American Fire Sprinkler Association
- Allstate Insurance Company
- B. F. Goodrich
- Central Sprinkler Corporation
- Copper Development Industry
- Factory Mutual Research Corporation
- Grinnell Fire Protection Systems Company, Inc.
- International Association of Fire Chiefs
- Man Made Fiber Producers Association, Inc.
- Marriott Corporation
- National Association of Home Builders
- NIST/Center for Fire Research
- National Electrical Manufactures Association
- National Fire Protection Association
- Operation Life Safety
- Pennsylvania Lumbermans Mutual Insurance Company
- Sentry Insurance
- Underwriters Laboratories
- U.S. Department of Housing and Urban Development (HUD)

And many others

For additional information write to:

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