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...re safety for homes,
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PEOPLE & FIRE



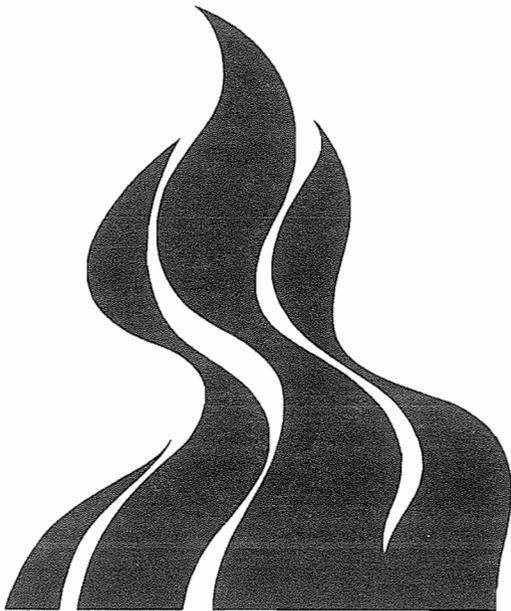
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PEOPLE & FIRE

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Latest ideas on fire safety
for homes, apartments, and
mobile homes

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PREFACE

Every year over 6,000 people die as a result of fire in the home, while many others are injured or disfigured. Every year fire also causes millions of dollars in property losses. *People & Fire* brings each home in the United States the very important message that many of these tragedies could be avoided.

Several years ago, the National Commission on Fire Prevention and Control indicated that, among the measures that can be taken to reduce fire losses, none is more important than educating people about fire. The difference between minor fire damage and total destruction of the home, including loss of life, depends on how well we prepare for and deal with fire.

This booklet brings the message of fire safety to persons living in houses, apartment buildings, and mobile homes. It contains suggestions for everyone; guidance on the best thing to do in case of fire, ideas for lessening the likelihood of a destructive fire, and recommendations on fire detectors. For the most part, the suggestions are simple and the cost minimal. By following them, the annual life and property loss by fire can be greatly reduced.

A handwritten signature in black ink that reads "Patricia Roberts Harris". The signature is written in a cursive, flowing style with a large initial "P".

*Patricia Roberts Harris
Secretary of Housing and
Urban Development*

CONTENTS

- 2 Preface
- 4 Plain Talk About a Deadly Peril
- 5 What to Do In Case of Fire
- 7 Planning: The Key to Survival
- 12 Fire-Fighting by the Householder
- 14 Clothing Fires
- 15 Liquids That Burn
- 16 Gas Dangers
- 17 Rubbish and Trash Fires
- 18 Home Construction and Decoration Materials
- 20 Match and Smoking Fires
- 21 Cooking and Heating Appliance Fires
- 22 Electrical Fires
- 26 Household Fire Safety Checklist

PLAIN TALK ABOUT A DEADLY PERIL

Let's face it, you've heard and read about the need for fire safety, and you've seen the deadly effects of fire almost every night on television or read about it in newspapers. You may even be familiar with statistics on fire losses and the toll in deaths and disfigurements which fire causes. But it is someone else who suffers, someplace else which burns...not you or your family or property.

Yet, if you are a parent reading this booklet, the chances are that someday you will have to deal with a fire in your home—and you may have to do it alone, or with infants or older children.

If you or someone in your family is a smoker, that person someday may be careless and start a fire.

Fire is not as impersonal as it seems, not as distant as it appears.

Fire is not selective; it feeds on human carelessness and takes its toll on the most important of natural resources: people. Children and adults, parents, the aged and

helpless, and the young and helpless are its victims.

While fire is seldom selective, it can often be prevented by simple precautions that any householder can take. When fire does occur, easy-to-do emergency planning can save lives.

This booklet speaks in practical, human terms—not in numbers or statistics. Its message is a simple one—being prepared saves lives.

Everyone in your family should know what to do and how to escape from the home in case of fire. Adults should know about pre-planning, firefighting and rescue.

Spend a few minutes reading this booklet and adapting it to your family and your home. It could make the difference between peace of mind or the sudden awakening in panic to the scream of a fire engine coming to your house or apartment.

It could very well mean the difference between life and death.



WHAT TO DO IN CASE OF FIRE

CASE HISTORY I

Mrs. H. was straightening up after fixing her husband an early morning breakfast. Their two children, ages 2 and 5, were still in bed asleep. She heard sounds from the kitchen and found that bacon grease had ignited on the stove; flames were spreading to the cabinets above. She called the fire department. Then, taking a fire extinguisher from a nearby closet, she attacked the fire and managed to prevent it from spreading. The fire department arrived shortly thereafter and extinguished the blaze. The fire was confined to the kitchen. Mrs. H. then discovered that her two children, asleep in another room, had died of smoke inhalation.

There's no place like home... for a fire. It's where most fires happen. It's where most lives are lost. In a fire emergency, there's no time for doubt or indecision—nothing should come before getting everybody out of the burning home. Whether you live in a house, an apartment or a mobile home, escape must be the first action. Everyone must get out. Life safety is the first consideration. It's natural to want to protect your property... but first make sure all the people are alerted and evacuated.

The first few minutes are critical. A fire can spread much more rapidly than you'd think. Even a small delay—while deciding whether the fire is serious or not, or trying to fight the fire yourself, or even calling the fire department—could be tragic. People should be evacuated before anything else is done.

EVACUATE FIRST... INVESTIGATE LATER

If you smell smoke...

If you see flames...

If you hear the sound of fire...

...FIRST, alert everyone in the home. Scream and shout. Help those who can't help themselves. Don't waste time; even seconds count.

GET EVERYONE OUT

DON'T investigate. DON'T try to fight the fire, until you're sure that everyone is

alerted and on the way to a safe place. Call the fire department as soon as you can, after everyone has been alerted. Call from a place where you won't get trapped by flames or smoke. As you leave, try to remember to close the door to your home or apartment to slow down the spread of the fire.

IF YOU AWAKEN TO SMOKE

In the typical house, the area close to the bedrooms on the second floor is the most dangerous. Because smoke and hot gases will rise, a downstairs fire can quickly block the only way out.

If you awaken to the smell of smoke, get everyone on the second floor out of the house as fast as possible. Act quickly but cautiously.

If the bedroom door is closed, test before opening it. If smoke is pouring in around the bottom or if it feels hot along the top edges, it's already too late to escape through the hallway and down the stairs. Shout to wake other people, but keep your door closed. Use a window for escape or to get fresh air while awaiting rescue.

If you don't see smoke and the upper edge of the door is not hot to the touch, open the door slowly but be prepared to close it again, fast. If the hallway is passable, act fast. Get everyone up and out without delay. Don't stop to dress or to get valuables. Close doors behind you to slow down the spread of the fire.

HOW TO GET OUT

The fastest, safest way to get out is to use the normal exits. However, if heavy smoke and flames are blocking hallways and stairs, you may have to use a window or other emergency exit.

If you live in an apartment building, don't use the elevators. You might get trapped.

STAY LOW!

Hot gases and smoke collect near the ceiling first, then move toward the floor as the smoke layer gets thicker. The best air is near the floor. If you keep low you have the best

chance of getting out of smoke-filled rooms and hallways.

KEEP YOUR COOL

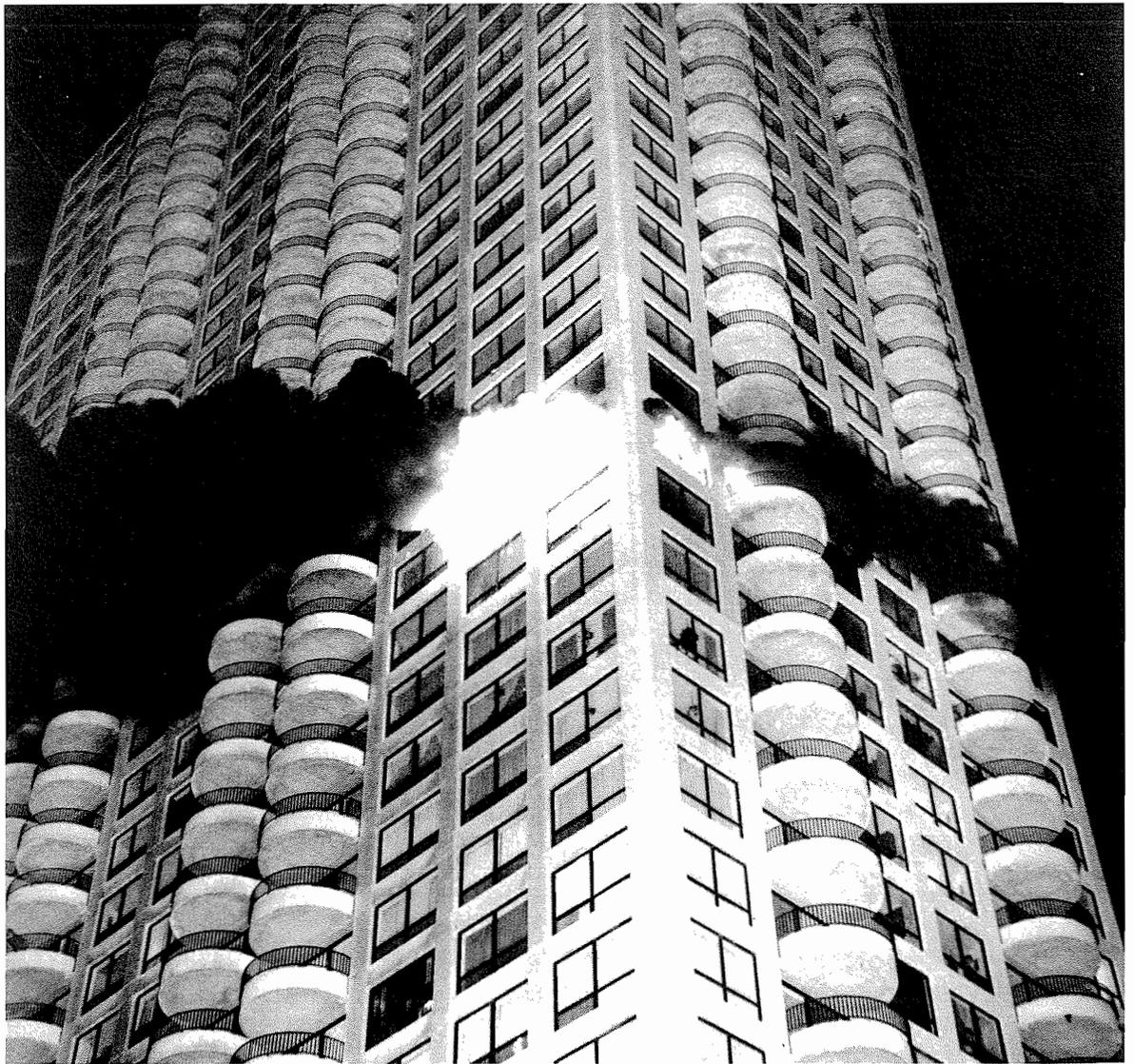
Smoke is the greatest danger in a fire. Most people die because smoke either blocks their escape or disables them. Not only are the gases from a fire poisonous, but the stress of an emergency makes you breathe harder, so you tend to take in more of these poisonous gases. Young children and elderly people are affected more quickly by smoke than are healthy young adults.

Knowing what to do makes it less likely

that you'll panic...and more likely that you'll survive. Remember that smoke and hot gases rise and collect at the ceiling, while the air near the floor will be breathable. Keep low. Act quickly. Stay calm.

IF SOMEONE IS TRAPPED

If people are trapped in a burning building before help arrives, help them if you can do it safely. But a rescue attempt by an untrained person through heavy smoke and flames is nearly always hopeless. Try to wait for the fire department. Equipped with special clothing and breathing apparatus, fire-



PLANNING: THE KEY TO SURVIVAL

fighters have a much better chance of reaching those who are trapped and bringing them out alive.

Watch your children. Don't let them re-enter the house to rescue a pet or a stuffed animal.

An adult may need to re-enter a burning building to rescue someone before the fire department arrives, but no one should ever attempt a rescue through heavy smoke and flames. The chances are you won't survive.

IF IT'S A FIRE IN A HIGH RISE

These days, buildings more than three or four stories high are usually built of materials which will not burn and will not collapse even if a severe fire occurs. A fire in such a building—called a "fire-resistive" building—will normally be confined to the apartment where it started, provided the apartment door is closed.

In most cases, if the fire is not in your apartment, you could stay there in complete safety.

The only time you should think about getting out is if smoke is beginning to fill your apartment and the corridor is still clear of smoke. If the corridor is smoke-filled and you can't reach a stairway, close all the doors between you and the fire. Vents through which the smoke could reach you should be closed or blocked. Open a window (break one, if necessary). You must have fresh air! Call the fire department from your apartment.

CASE HISTORY I—as it should have read

Mrs. H. was straightening up after fixing her husband an early morning breakfast. Their two children, ages 2 and 5, were still in bed asleep. She heard sounds from the kitchen and found that bacon grease had ignited on the stove; flames were spreading to the cabinets above. She immediately ran to the children, took them outside, then called the fire department from a neighbor's phone. The fire department arrived shortly thereafter and extinguished the blaze. The fire was confined to the kitchen. There were no injuries.

PLANNING FOR EVERY FAMILY MEMBER

The time to plan for a fire emergency is before it happens, when everyone is calm and rational. That's when decisions about escape routes can be made carefully and safe evacuation can be rehearsed. Have a family conference as soon as possible. Don't delay. Planning won't help after the fire. Your conference doesn't have to be long or complicated. Just emphasize the most important fact: **Life Safety Always Comes First.**

Knowing ahead of time how to get out during a fire can save precious seconds. While the best exit is the normal way out, an alternate escape route should be pre-selected in case the normal route is blocked by fire or smoke.

Take each person to his or her room and describe what to do in case of fire. Give everyone a responsibility. Older children should look out for the younger ones. Special plans should be made for those who cannot escape by themselves. Have them sleep where it will be easy to get them out. Adults who can't walk should sleep on the first floor of a house. Small children should sleep near older persons who can provide help. Only the most agile should sleep in hard-to-evacuate basement or attic bedrooms.

Practice your emergency escape plan at night, in the dark. Develop a realistic plan. For instance make sure the children can actually open and escape from the window you expect them to use in case the normal way out is blocked. Don't expect too much of children, but at least teach them to close their bedroom doors and wait by an open window until someone can reach them from outside.

Adults should emphasize to children that adults are sometimes very difficult to awaken, particularly if the adult has been drinking or has taken medicine. Make sure the children understand that they must leave by themselves if an adult can't be aroused.

Select a meeting place outside, so you can be certain that everyone is safely out of the building. Know the location of nearby

telephones or street fire alarm boxes. Instruct your family to tell firefighters if anyone is trapped in the building, or if all are safe.

FOR APARTMENT RESIDENTS

Follow the pre-planning suggestion of the previous section. Remember that if the fire is in your apartment, you must first get everyone out. Close the door behind you and alert others in the building. Escape through windows is possible only from lower floors.

Familiarize yourself with whatever fire alarm there is in the building. (Most smaller or older apartment buildings don't have one.) Know where the "pull box" is located and how it is operated. Your family should know what the fire alarm bell or horn sounds like, and what to do when they hear it. Try to get the other families in your building together to have fire drills. (Often, the local fire department will gladly assist you with such drills.)

FOR THE BABYSITTER

Tell your babysitter what to do in case of fire. Tell him or her about alternate escape routes, where the children are sleeping, the importance of life safety over property, the location of the telephone and telephone extensions, and where you can be reached. Write down the telephone number of the fire department and tape it to the receiver of each telephone. Ideally, instructions to the babysitter should be written and posted in a convenient location. Don't leave the babysitter out of your plans.

EARLY WARNING: A KEY TO SAFE ESCAPE

Over and over, it has been shown that if the family is warned early enough of the presence of a fire, they can escape. If the warning is not given—if the family is asleep when fire breaks out—chances are very good that there will be a fatality.

You may *think* that you will wake up as the house fills with smoke. But the facts prove differently. A smoldering couch—nothing else touched—gives off sufficient

smoke, heat and other gases to fill the house silently, quickly, so that no one escapes. It's happened time after time.

The Los Angeles Fire Department studied over 4000 home fires and found that three out of every four started like that: smoldering for minutes, hours, sometimes never breaking out in flames. The smoke and toxic gases build up, spread throughout the home, and block escape from the bedrooms. Often, when flames finally break out and an alarm is given, it's already too late. The family is trapped.

But this does not have to happen.



Smoke detectors can save lives.

Special devices which you can buy for the home can detect small amounts of smoke and sound an alarm while there is still time to get out. There are now many types of these smoke detectors on the market, and you can buy them from any number of nearby sources. Many of them are very good, very reliable, and inexpensive. The important thing is that they are smoke detectors, tested and labeled by Underwriters' Laboratories (UL) or Factory Mutual (FM). Only the smoke detector can give warning early enough to give you a chance to escape, and the UL or FM label gives you the assurance that the device has been tested for sensitivity and reliability. The illustrations on page 10 give recommended locations for their installation.

Smoke detectors typically operate either on a "photo-electric" or an "ionization" principle; they are complex, electronic devices. Heat detectors are also available, but they sense the temperature of the fire after it has already reached the flaming stage, and they will not give early enough warning. They may be cheaper, but they will not give the protection you need. Heat detectors, however, can be useful as supplements to smoke detectors, and may be installed in attic spaces, garages, and other areas where fires will not immediately block safe escapes.

Information on what to buy and how much it costs follows. The smoke detector should be very high on your shopping list whether you rent or own your home, whether you live in a house, apartment, or mobile home. It gives you the odds that you will survive a fire in your home at night.

HOME FIRE ALARM SYSTEMS

Home fire alarm systems are needed primarily to alert occupants about a fire that starts while they are asleep. The U.S. Department of Housing and Urban Development requires a smoke detector be installed in each new home or apartment built under its Minimum Property Standards. Smoke detectors, although important in all homes, are essential in mobile homes, small apartments and small houses, which quickly

fill with lethal smoke from even a small fire.

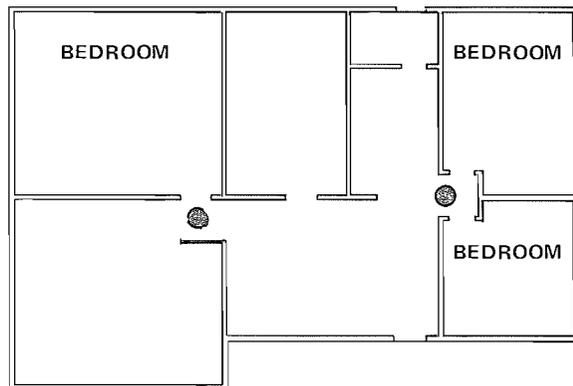
A home fire alarm system can range from a single smoke detector outside the bedrooms to a complete system covering all rooms. Many detectors are available for easy installation by the householder in attractive, compact units containing both a detector and loud alarm bell or buzzer; these are known as single station detectors. When a large home or an entire apartment building is protected by detectors, it is customary to use a professionally installed electrically supervised system to which as many heat and smoke detectors can be wired as required for complete protection. When a detector is activated it sends an electrical signal to a control panel, which then sounds alarm bells or horns in various parts of the building. Electrical supervision means that if a wire becomes loose or a smoke detector becomes inoperative, a signal will sound. Some systems can even call the fire department, or perform security functions.

Smoke detectors must form the backbone of the home fire alarm system. The smoke detector senses an abnormal amount of smoke or invisible combustion gases. Only the smoke detector gives early warning of both smoldering and flaming fires.

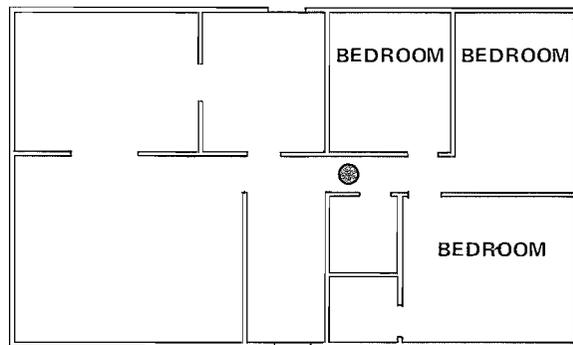
Heat detectors can be either the rate-of-rise type, which senses a rapid rise in temperature or the fixed-temperature type, which operates when it is heated to a preset temperature, usually 135 degrees F. Rate-of-rise heat detectors operate faster than the fixed-temperature type, but neither gives early warning of the smoldering fire nor responds to the flaming fire as quickly as the smoke detector.

Home fire alarm systems vary considerably in complexity and cost (see table on page 10). The minimum system is a single-station smoke detector, electrically operated either by household current or batteries. The battery-operated unit is easy to install, requires only periodic checking and must have its batteries replaced once a year. When the batteries get weak the unit will sound a trouble alarm to alert you. For a more extensive system, two or more single-station

Fig. 1



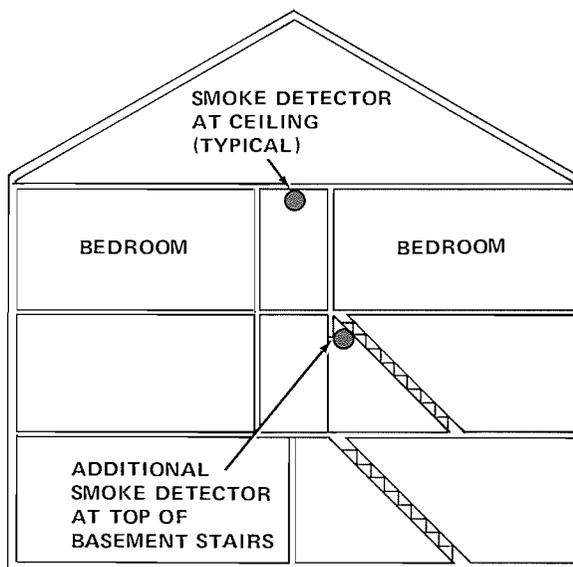
Detectors adjacent to both sleeping areas



Single detector adjacent to bedrooms

Proper locations for smoke detectors outside bedrooms

Fig. 2



Detectors at top of stairway on each floor

units can be used, but where several units are desired, it is customary to install a special control panel to which all the detectors and alarm bells needed are wired. These are normally installed by a professional alarm firm.

The devices you buy should have the approval label of a testing laboratory, such as Underwriters' Laboratories.

Where only a partial system is installed, the areas to be considered first for installation are listed below in decreasing order of importance:

1. A smoke detector outside of each sleeping area (Fig. 1).
2. A smoke detector at the top of the basement stairs (house or small apartment building). (Fig. 2).
3. A smoke detector in the living room, family room or study if the entrance to the rooms (or group of rooms) is more than 15 feet from the bedroom smoke detector.
4. A smoke detector in the bedroom of the person who insists on smoking in bed.
5. Smoke or rate-of-rise heat detectors in other rooms and spaces.

TYPICAL COSTS OF HOME FIRE ALARMS*

Single-station smoke detector unit, battery or plug-in type, complete, UL or FM labeled. \$30 - \$75

Single-station heat detector unit, for additional coverage (not to be used without smoke detector outside bedroom area); battery, plug-in or compressed gas type, complete; UL or FM labeled. \$20 - \$60

Complete, wired, electrically supervised system, including necessary smoke detectors, additional heat detectors, bells and control panel

Large apartment or small house	\$600
Medium sized house	\$800
Large house	\$1000 - \$1500

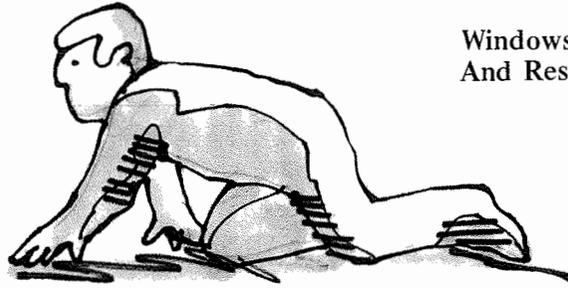
*1976 prices

HOW TO GET OUT

Escape through normal exitways—Adults should know the precautions to take before opening a hallway door when fire is suspected.

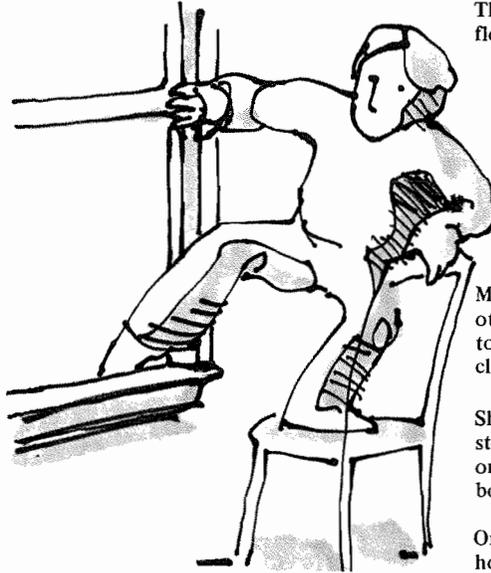
Be sure your children know how to unlock doors in the path of the exit. If a key is needed to open a door from the inside, either keep it in the lock or on a nearby key-ring where it can be found in the dark.

If you live in an apartment building, know the various ways you can use to get from the apartment to the outside, and show everyone in your family. Stress the importance of using stairways or fire escapes, not elevators, in case of fire.



Windows For Escape And Rescue

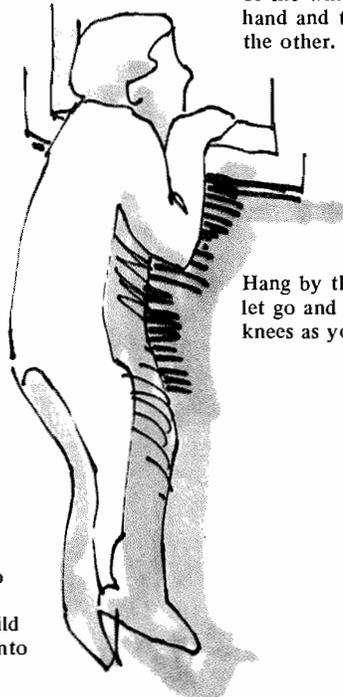
Hot gases and smoke collect near the ceiling. The best air is near the floor.



Move a chair, table or other low piece of furniture to the window to help climb out.

Slide out on your stomach, feet first. Hold on to the window sill with both hands.

Or slide out sideways, holding onto the inside of the window with one hand and to the sill with the other.



Hang by the hands. Then let go and drop, bending the knees as you land.

Lower small children as far as possible, then let them drop. Don't go first and expect a small child to follow. The child may panic or go back into the room.

Through Windows—From most houses and from the lower floors of apartment buildings, emergency escape through windows is a good possibility. See page 11 for the best ways of leaving by a window with the least chance of serious injury.

In a home fire, windows are often the only means of emergency escape. The second floor window sill is usually not more than 13 feet from the ground. An average person, hanging by the fingertips, will have a drop of only about 6 feet to the ground. Often, the second floor window opens onto a porch roof or balcony from which it's possible to drop to the ground or await rescue.

Windows are also useful when you're waiting for help. Often you'll be able to stay in the room for several minutes—provided you keep the doors closed—and if you do this, you should open a window. Keep your head low in the window to be sure you get fresh air rather than smoke or gases that may have leaked into the room.

Rope ladders or ropes securely fastened to the building structure (not just to the window frame) can be valuable, if your family is agile enough to use them. They can be especially handy in rural areas, where fire department response may be slow.

On the second or third floor, the best windows for escape are those which open onto a roof or balcony, from which a person can either drop to the ground or await rescue. Dropping onto concrete walks or pavement is most likely to result in injury, while bushes, soft earth, and grass will break a fall. A rope ladder should be considered when the drop is too great. In a town where quick response by the fire department is usual, it may be safest to close the doors, call the fire department if there is a phone in the room, and wait by an open window for rescue. Shout for help and to attract attention.

CAUTION: Be sure to close the door before opening a window.

Otherwise, smoke and fire may be drawn into the room by the draft.

CASE HISTORY II

As he stepped from the elevator, a resident noticed smoke coming from under the door of an apartment. He immediately returned to the lobby and notified the security guard, who went upstairs to investigate without first sounding the fire alarm or calling the fire department. The guard grabbed the fire hose in the nearest stairwell and used his master key to open the door to the burning apartment. He was met by a blast of smoke and hot gases, which gave him no opportunity to use the hose. Neighbors telephoned the fire department, but before firefighters arrived, smoke had filled the hallway, blocking escape through the stairway where the hose was holding the door open. The guard and three others who tried to escape through the smoke-filled hallway were dead on arrival at the hospital. A fifth died a few hours later.

Fire fighting by inexperienced persons endangers their lives and the lives of others. Normally, the fire department should fight the fire, not the householder. Bear in mind that the primary consideration is life safety and your first duty is to get everyone to a place of safety. Putting out the fire in order to save your property is secondary. You should attempt to do so only if you have had training or experience in the use of fire extinguishers and other fire-fighting equipment on real fires.

Safeguard your life. Don't fight a fire if there is a chance of being trapped. If there is any doubt about putting out the fire, call the fire department before doing anything.

WHEN IS IT SAFE TO PUT OUT A FIRE?

Some situations producing fire and smoke involve little likelihood of immediate fire spread, and the householder may safely take action to put out the fire. A few are illustrated on the next page.

A person whose clothing is on fire creates a special situation where fire fighting is an immediate necessity. Roll the person on the floor and smother the flames with a rug, blanket, coat or anything else handy.

Get medical attention as fast as possible. See page 14 for more information about what to do when clothing catches fire.

WHAT FIRE EXTINGUISHER TO BUY FOR THE HOME

If you are going to have an extinguisher in the home, be sure you have had training or experience in putting out actual fires. An

extinguisher is useful in the workshop or garage for small fires which can be extinguished without endangering lives. Hang it near the door through which you would escape.

In rural areas, the limited fire-fighting capabilities of fire extinguishers may be supplemented with hose lines on the outside of the building.

FIRE EXTINGUISHERS FOR THE HOME

	WATER	DRY CHEMICAL			CARBON DIOXIDE	HALOGENATED HYDROCARBONS	
	Pressurized Water	Ordinary Sodium Bicarbonate	Multi-Purpose	Potassium Bicarb. ("Purple K")		"Halon" 1301	"Halon" 1211
SUITABLE FOR USE ON:							
CLASS A FIRES: paper, wood, cloth, rubber, plastics, etc.	YES	*	YES	*	*	*	*
CLASS B FIRES: oil, gasoline, solvents, paint, cooking oil, grease, etc.	no	YES	YES	YES	YES	YES	YES
CLASS C FIRES: energized electrical wiring, equipment and appliances	no	YES	YES	YES	YES	YES	YES
Usual size or capacity designation for extinguishers in the home	2½ gal.	2½ to 10 pounds			10-15 lbs.	2-3 lbs.	
Approximate cost (1975 prices)	\$35	\$6-\$35	\$12-\$40	\$20-\$50	\$50-\$70	\$35-\$50	

* Can be used to contain a fire, but may not extinguish it.

COMMON HOUSEHOLD FIRES AND HOW TO FIGHT THEM

TYPE OF FIRE	WHAT TO DO
Food in the oven	Close the oven door. Turn off the heat.
Smoke from an electric motor or appliance	Pull the plug or otherwise turn off the electricity. If flaming, use water after the electricity is off.
Smoke from a television	Keep clear; the picture tube may burst. Call the fire department. Shut off power to the circuit.
Small pan fire on the stove	Cover with a lid or plate. Turn off the heat.
Deep fat fryer	Turn off the heat and cover with a metal lid if you can approach it. Don't attempt to move the appliance. Don't fight the fire. Evacuate, then call the fire department.

CLOTHING FIRES

CASE HISTORY III

Emily wore a loose housecoat while cooking dinner for her husband. As she reached for the salt, her sleeve brushed a burner on the stove and burst into flames. She panicked and ran screaming into the living room. Her husband also panicked, but instead of smothering the flames, he ran for a bucket of water to put out the fire. In the short time he took to return with the water, Emily was fatally burned.

Clothing fires are dangerous and frightening. The victims can be scarred for life. Knowing in advance how to deal with a clothing fire can save you or a loved one from a lifetime of disfigurement and pain. Children and the elderly are particularly vulnerable to fires. Young children are unfamiliar with the danger of fire, while the elderly may have poor eyesight, slow reflexes and physical infirmities.

Girls and women suffer more often from clothing fires than men and boys. Women's clothing can be loose fitting, flowing or frilly, catch fire easily and burn quickly. In addition, because women in many cases do most of the cooking, they are exposed to the most dangerous source of all clothing fires—the kitchen stove.

WHAT TO DO ABOUT CLOTHING FIRES

If it's your clothing—Don't run. It fans the flames. Lie down. Roll over and over. Remove the clothing if you can do so without pulling it over your head. Act fast.

If it's someone else's clothing—Don't let the person run. Get the victim on the ground—grab and push if necessary. Roll the victim over and over. Use anything handy to smother the flames—a rug, coat, blanket, drapes, towel, bedspread or jacket. If outside, use sand, dirt, snow or anything else handy. Don't wrap the victim's face—only the body. Try to remove the burning clothing, but don't pull it over the victim's head.

PREVENTING CLOTHING FIRES

– Avoid getting close to open flames and red-hot surfaces

– Check your kitchen for hazards. Store only baking and storage dishes in cabinets over the stove, never food which can tempt a child

– Teach children the danger of playing with matches or lighted candles

– Make or buy costumes of flame retardant materials

FLAME RETARDANT SLEEPWEAR

Manufacturers are required to make infants' and children's sleepwear flame-retardant through size 14. While still combustible, clothing which has a flame-retardant treatment or which uses special fabrics does not ignite as easily.

Before washing, be sure to read the instructions on the label. Some sleepwear should be laundered before wearing. Improper laundering of this clothing can destroy the special flame-retardant qualities. Wash only with a good quality, phosphate detergent. Do not use soap, low or non-phosphate detergent, or liquid bleaches. Avoid powder bleaches. Flame-retardant clothing should not be sent to a commercial laundry.

Consumers should be aware that the Consumer Product Safety Commission is reviewing information related to the safety of chemicals used to treat certain fabrics to make them flame resistant. For latest information concerning this problem contact the U.S. Consumer Product Safety Commission Hotline (toll free): 800-638-2666 (Maryland residents call 800-492-2937).

CASE HISTORY IV

Mr. J. was overhauling his son Timmy's bicycle in the basement and placed the bearings and sprockets in a pan of gasoline to remove the grease and dirt. Fumes from the gasoline traveled into the utility room and were ignited by the pilot light on the water heater. The flame flashed back, explosively igniting the gasoline in the pan and instantly killing Mr. J. The fire spread rapidly into the house, trapping Timmy and his brother in an upstairs bedroom. Mr. J's wife was severely burned in a futile attempt to rescue the two children.

FLAMMABLE LIQUIDS ARE ALWAYS DANGEROUS

Flammable liquids are heavier than air. They can flow along the ground for considerable distances, produce invisible explosive fumes, burn along the surface with extreme rapidity, and burst into flames from a small

spark at some distance from the liquid. These unstable properties make flammable liquids extremely hazardous. Because they are so common in our lives, we tend to ignore the danger in their handling and storage.

Gasoline should be stored in a tightly capped metal can and kept in small quantities of not more than 1 gallon in the garage or shed. If there is no other place and it must be stored inside, always use a good quality safety can which carries the Underwriters' Laboratories or Factory Mutual approval label. Always take the can outside to fill a lawnmower, snowblower, lantern or other equipment; never do it inside the house, apartment or mobile home.

Acetone and benzene (benzol) are almost as dangerous as gasoline and should be handled in the same manner. Lacquer thinner, methyl ethyl ketone and toluene (toluol) are other common flammable liquids. If used inside, be sure the area is well ventilated. Extinguish all flames, including pilot lights. Use only $\frac{1}{2}$ cup at a time. Read the label. If it is labeled "Extremely Flammable", using the liquid indoors would be highly dangerous and should be avoided.

Other liquids such as turpentine and alcohols discharge only a small quantity of fumes at room temperature and are less dangerous, but nevertheless should be used with care. Once ignited, they will burn vigorously. Keep these fluids away from heat sources and open flames.

COMBUSTIBLE LIQUIDS ARE ALSO DANGEROUS

Combustible liquids, such as paint thinner, kerosene, charcoal lighter fluid, cigarette lighter fluid, cleaning fluid, and turpentine, do not produce flammable or explosive vapors under ordinary conditions. However, combustible liquids are dangerous and flammable when heated, when in a spray, or when spread in a thin layer over a large area. Never attempt to heat such liquids. Use caution even with hot cooking oil and melted grease, which also burn rapidly. Never spray or pour a combustible liquid



over a flame or hot surface. If it spills on your clothing, promptly take off the garment and let it dry in a safe place. The combustible liquid becomes flammable as it evaporates over a large surface area.

When using combustible liquids to clean rugs, walls, floors or any large piece of fabric, remember that a match or flame can ignite the fumes and start a fire over the entire area of the cleaning surface. Use a water-base cleaner whenever possible. When it is necessary to use a combustible cleaning fluid indoors, open the windows and extinguish all pilot lights and other flames. Clean only three or four square feet at a time, using a small amount of cleaner. Let dry for 30 minutes. Clean away from the door first, then work towards the door, so that if a fire starts it will be easier to leave the room. When not in use, keep the containers tightly closed.

Always Read the Label— Avoid buying liquids labeled “extremely flammable.” In any case, purchase only the amount you need. Once opened, store in a well ventilated location in the original container. Glass can be broken and plastic containers can dissolve, so don’t substitute these for the original container.

OTHER HAZARDOUS MATERIALS

Contact Cements—Extremely Flammable! As dangerous as gasoline! Frequently used to lay carpet and to apply wall and ceiling decorating materials. Use only very small quantities at a time. Open the windows. Extinguish all flames including pilot lights. Don’t use electrical tools in the same room.

Hair Sprays—Many hair sprays can be ignited before and after using, particularly with long, loose hair near open flames. Never use matches or lighters while spraying. Stay away from the cooking range until the spray is completely dry.

Oil base Materials—Linseed oil, turpentine, oil base paint, and other oils of fish, animal, or plant origin may ignite spontaneously on soaked rags or papers. Store rags and papers in a covered metal can, or thoroughly soak with water before placing in the garbage.

Natural gas is used frequently in the city, while LP gas is the most common fuel gas used in rural areas. Both types have an odorizing agent added making it possible to smell a leak. Both gases are flammable and highly explosive.

CHECKING A SLIGHT ODOR

If you smell a slight gas odor, look immediately for the source of the leak. Never use a lighted match or candle for this purpose. If you need light, use a flashlight. To check for gas leaks, first check all pilot lights and stove or heater burners. Call the gas company if you are unable to determine the source of the leak. Use a soap solution to test for a leak in gas piping; when you wipe it on the pipe, the bubbles will identify the leak. In checking leaks, remember that natural gas is lighter than air and will rise to the ceiling. The opposite is true of leaking LP gas: it will collect near the floor or in the basement, places from which it is difficult to vent.

IF THE ODOR IS STRONG

Get everyone out at once, leaving the doors open. Don’t operate any electric switches or use the telephone. Call the fire department from a neighbor’s home. Don’t shut off the gas supply unless the gas shut-off valve is outside the building.

USING GAS APPLIANCES

When igniting gas appliances, have the match lighted before turning on the gas. Keep your face turned away to avoid the flashback of an unsuspected gas buildup. If you move, or if you buy a new gas appliance, be sure the label is marked for use with the type of gas you have available (natural or LP).

Portable stoves, torches and small LP gas cylinders contain enough gas to cause explosions in confined areas. Observe all safety precautions on the label.

If you live in a mobile home, the gas connections can be loosened or detached by highway vibrations during a move. Be sure that all fittings are tight before connecting the gas supply.

RUBBISH AND TRASH FIRES

Rubbish and trash ignite easily, burn rapidly, and spread fire quickly. The best way to deal with trash is to dispose of it weekly. Good housekeeping reduces the chance of fire because it gets the unwanted materials out of the home.

The most common places for storing rubbish and trash are in the kitchen and basement. Rubbish and trash fires occur more often in the kitchen and basement because that's also where you'll find the things that start fires: stove, heater, furnace, and electrical appliances. Be a "spring house-cleaner" all year. Remove trash and rubbish from the home.

A CLEAN HOME IS A FIRE SAFE HOME

- Waste baskets should not be larger than

necessary. Metal baskets are preferable to cardboard or plastic. Empty all wastebaskets often. Don't let them overflow.

- Rubbish containers and garbage cans should be steel, with steel covers, if stored inside the home or attached garage.

- Rubbish and trash, wastebaskets and rubbish containers should be kept away from the stove, water heater, furnace, and other ignition sources.

- Get rid of old clothes, toys, boxes, and rags.

- Keep storage areas neat. Cardboard boxes and other combustibles are best stored on steel shelves, off the floor.



HOME CONSTRUCTION AND DECORATION MATERIALS

WALL AND CEILING MATERIALS

Survival during a fire is influenced by the type of wall and ceiling materials exposed in your home. Commonly used plaster and gypsum wallboard (also called drywall or plasterboard) are considered safe building materials, since they help neither the development nor the spread of a fire.

If your home has plastic laminates on the walls, acoustic tile on the ceilings, exposed insulating materials, or wood paneling, a fire can develop more rapidly, to the point where your chances of getting out safely are seriously reduced. The difference between fire-safe gypsum board construction and unsafe fiberboard finish can be seen in these photographs of tests conducted on a house with fiberboard on the walls, and another with gypsum board over the fiberboard.

WALL PANELING: A MAJOR PROBLEM

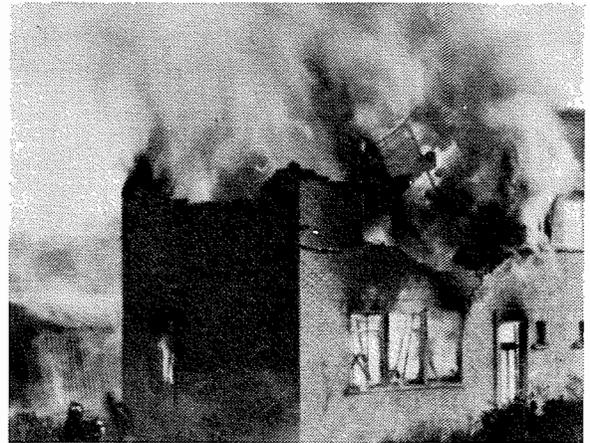
While manufacturers of ceiling tiles and panels now generally market only products with reduced flamespread characteristics, wall paneling commonly sold today for use in the home may cause fire to spread with great rapidity. Paneling installed in many older mobile homes will spread fire very fast.

Thin (less than $\frac{1}{4}$ inch) prefinished plywood paneling, plastic laminates on plywood or hardboard, corkboard, particle board, and rigid urethane insulation are examples of materials which are capable of rapidly spreading a fire. Some of these materials can have special treatments or special adhesives to reduce their flammability, but the typical product sold for home use in lumberyards, discount stores and home centers is likely to have dangerous flame spread characteristics. In an actual building fire, these substances not only can cause flames to spread rapidly from the point of origin but they can also give off thick, suffocating smoke.

The greatest danger occurs when these materials are used in large quantities. If they are in use throughout the home or even in one downstairs room and the adjoining stair-

way to the second floor bedrooms, corrective steps should be taken. There are several possible solutions. Cover the material with gypsum wallboard. Install an automatic smoke detector in the area to give early fire warning. Special "intumescent" paints and varnishes are available which will puff out on the surface of the paneling to form a

WALL AND CEILING MATERIALS CAN INCREASE THE FIRE HAZARD



Fire quickly engulfs this house after only 19 minutes when highly combustible interior finishes, such as thin plywood, uncoated wood fiber ceiling tiles, and many plastics, are used. In this demonstration fire, fiberboard was used.



This photo of a similar house, taken 24 minutes after fire started, shows that when the walls and ceilings are lined on the inside with nonburning materials or materials which are very difficult to ignite, fire has much less chance to grow. Drywall (gypsum board) or plaster are the most common materials for fire-safe interior finish. For the test shown in these photographs, the exposed fiberboard was covered with gypsum board.

temporary heat shield, thereby retarding the spread of fire. Low-density, unfinished fiberboard can be made safer by applying a generous coat of ordinary, latex paint.

CARPETING AND WALLPAPER

Carpeting purchased today must pass a test which determines limited flammability when it is used as floor covering, but if it's used in large quantities on the walls it can produce the same hazards as flammable paneling.

Thin wall coverings, such as wallpaper and vinyl applied to plaster or gypsum wallboard, create no significant hazard and should be of no concern to the householder.

HOLIDAY AND PARTY DECORATIONS

Fire is an unwelcome and uninvited guest during the holiday seasons and at parties. Follow these precautions to lessen the danger of a disaster at festive times of the year.

CHILDREN'S PARTIES AND CANDLES

Costume and party dresses worn at children's parties are especially dangerous around lighted candles and flames. Use candles sparingly and keep paper hats, dresses or long hair away from them. Don't leave candles burning unattended while you're away or asleep.

CHRISTMAS TREES

The safest Christmas tree is artificial and flame-retardant. Natural trees will burn extremely fast when dry. When using a natural tree, buy a stand that will contain water and place the tree away from sources of heat

which accelerate its drying out. Turn off radiators and close hot-air registers near the tree. Fill the stand with water every day. Place your Christmas tree so that it does not block an exit if it catches fire.

CHRISTMAS TREE LIGHTS

Use only UL labeled Christmas tree lights. Before putting them on the tree, check the individual cords for frayed wires or insulation. Remember that a bare wire or bad connection can start a fire without blowing a fuse. When you go out or retire for the night, turn off tree lights.

DECORATIVE MATERIALS

Buy only materials labeled as flame-retardant or noncombustible. Don't use plastic blocks as a candle base, or spray decorative materials with a spray unless it is marked as flame-retardant. Gift wrappings and packing materials should be promptly discarded in the garbage can.

HINTS FOR HOME REMODELING

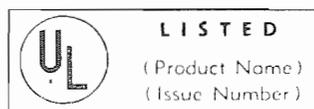
Modernizing your home? Putting on an extension? Adding a rec room? This is a good time to make some changes which can increase your chances for getting out alive in case of fire. Following are a few suggestions.

Emergency Escape—From bedrooms on lower stories and from basement rec rooms, windows are usually an emergency, second way out. To be acceptable for emergency escape, they should open easily to at least 18 in. wide by 24 in. high. (Basement windows just above the ground outside can be 24 in. wide by 18 in. high as a minimum.) The sill should not be over 4 ft. above the floor, preferably less. Jalousie and hopper windows usually are not suitable because of the difficulty of escaping through them.

Electrical Wiring—Avoid aluminum wiring unless copper clad. Even the experienced do-it-yourself wiring installer should first buy one of the books on electrical wiring sold by the major mail order retailers. These



FACTORY MUTUAL SYSTEMS



UNDERWRITERS LABORATORIES, INC.

MATCH AND SMOKING FIRES

books will both simplify the work and provide guidance on safe installation.

Doors—Improved fire and life safety can be obtained by installing a steel or heavy wood door (not a hollowcore door) between the hallway to the bedrooms and the rest of the house; also at the top of the basement stairs. Put a lock on the door and you also will have improved security. Should an intruder gain entrance to the rest of the house, he could not readily get into your bedrooms.

Interior Finish—The following materials are sufficiently fire safe for general use on the walls and ceiling of your home:

1. Any ceiling tiles or pre-finished wood paneling that is UL labeled with a flame-spread of 200 or less.
2. Plaster
3. Gypsum wallboard
4. Wallpaper, canvas or thin plastic (under 1/16 inch) over plaster or gypsum wallboard
5. Fiberglass
6. Ceramic tile
7. Metal tile
8. Mineral fiber ceiling tiles

Other types of wall finish materials should only be used in small quantities such as partial wall covering in a small room like a bathroom.

Security—If a window needed for emergency escape is an invitation to intruders, there are several solutions:

1. Glaze the window with an impact resistant glazing material such as tempered glass, heavy plastic sheet or wired glass.
2. Install a metal gate or grill over the inside of the window, which can easily be released from the inside.
3. Install an alarm system on that window. Locks requiring a key to open a door from the inside and multiple locks which must be opened in a certain order can prevent escape in case of fire. A single dead bolt lock which does not require an inside key provides good security if any glass panes in the door are protected as described above.

Today's safety match is not likely to ignite spontaneously, and it has been treated to prevent afterglow. Nevertheless, the burning match can't differentiate between a useful fire—on the stove or in the fireplace—and a destructive blaze that could destroy your home. It takes common sense and respect for the match's potential to control this source of danger.

Matches are neither toys nor flashlights. Teach your children to understand that clothing and other materials in the home will burn and that a match can ignite them. Keep matches out of the youngsters' reach. Store one or more flashlights or lanterns close to where you can easily find them in an emergency, so you can avoid the temptation to use matches to light the way.

An elderly person with slow reflexes or with arthritis may have difficulty grasping a match or trying to pick one up if it has been dropped. Give him or her an easy-to-operate lighter which will go out by itself if dropped. Keep matches away from the mentally depressed or severely retarded.

SMOKING CAN BE DANGEROUS

Cigarettes and other smoking materials are among the most common causes of fires. Everyone knows that smoking in bed is dangerous, yet every year, hundreds of people die after falling asleep with lighted cigarettes in their hands. The best advice about smoking in bed is: DON'T.

Remember to keep the things that start fire away from the things that burn. Dispose of cigarettes and other smoking materials in ashtrays, and empty the ashtrays into a covered metal can, the toilet, or the garbage disposer before retiring at night. Look for smoldering smoking materials in chairs and couches. Hot ashes in between the cushion and the side of upholstered furniture can smoulder for hours before suddenly bursting into flames in the middle of the night.

COOKING AND HEATING APPLIANCE FIRES

THE KITCHEN

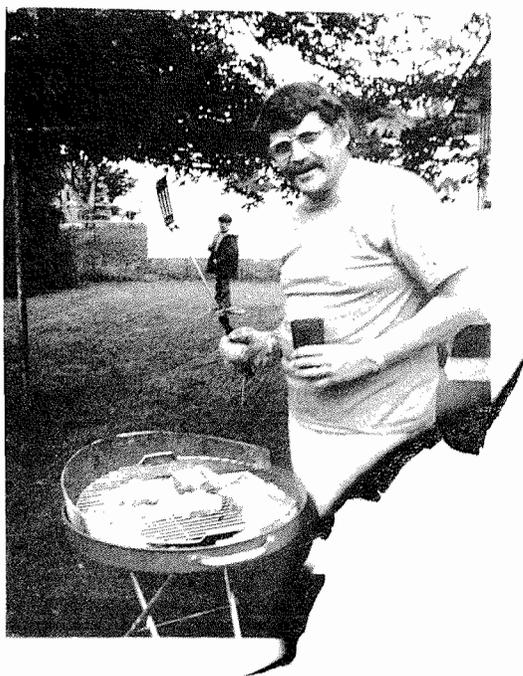
All of the ingredients for dangerous fires are found in the kitchen. The things that burn include cooking oil, grease, paper towels, napkins, garbage, clothing, even food. The things that start fire include the burners on the stove and in the oven, the toaster, the electric grill, and the deep-fat fryer.

Normal precautions are all it takes to keep the things that burn away from the things that start fires. Oil and grease will not easily catch fire at room temperature but can burst into flame after being heated. Once in flames, they will burn fiercely and are difficult to extinguish. Prompt evacuation of the home is usually essential if this should occur (see section: What To Do In Case of Fire, page no. 5). Small kitchen fires—those which are confined to a pan, for instance—can be extinguished by covering the utensil with a cover or plate. An oven fire usually will go out within a minute, once the heat is turned off and the oven door is closed.

THE BARBECUE GRILL

Because of the danger of carbon monoxide poisoning, as well as for practical fire safety reasons, charcoal cooking should always be done out-of-doors, unless you have a special installation with an adequate exhaust hood. The charcoal fire is not a hazard by itself out-of-doors. It becomes dangerous, however, when a child or adult is burned as the result of coming too close to the grill.

The most common fire incidents involving barbecue grills occur when the user ignites the charcoal with a flammable liquid or “freshens it up” by pouring a combustible liquid over smouldering coals. Even if the fluid isn’t ignited when it strikes the charcoal, it will be heated, producing vapors that are as explosive as gasoline. Never use gasoline, gasoline lantern fuel, or similar flammable liquids to start a fire. Never use charcoal lighter fluid, kerosene, or any other combustible or flammable liquids to “freshen up” a fire. (Suggestion: to “freshen” your charcoal fire, first moisten a



few pieces of charcoal separately with lighter fluid, then carefully add them separately to the grill.)

HOW TO PREVENT HEATING EQUIPMENT FIRES

- Follow the manufacturer's maintenance instructions. Kerosene and oil burning appliances usually need cleaning and adjusting annually. Motors, blowers and pumps need periodic oiling.

- Where inspection is possible, check chimneys annually for cracks, loose bricks and mortar and excessive soot accumulation (especially if you burn coal or wood). Check the connectors between appliance and chimney for tightness, rusted out spots and proper operation of adjustable dampers.

- Carefully follow the instructions provided for lighting of gas, oil or gasoline burning devices. Never by-pass any of the safety controls.

- Use only the fuel for which the appliance was designed.

- Keep boxes, trash and other combustibles at least three feet away from any heating appliance.

- Portable heaters should be placed where they won't tip over, and where curtains and bedding won't fall on them. Make sure there is a guard over electric heating coils to prevent contact of the coils with things that burn.

- Never use gasoline, gasoline lantern fuel, kerosene, naphtha or any other flammable or combustible liquid to start or freshen a fire in a coal or wood burning stove.

- Give burners the fresh air they need for most efficient combustion, by adjusting as recommended in the manufacturer's specifications. "Dirty," yellow flames produce soot accumulations which can ignite or cause a burner to malfunction.

- If a heating appliance isn't working properly, it should be repaired immediately.

- Keep a good quality metal screen in front of the fireplace. The area in front of the fireplace should be clear of anything that burns.

Electricity is dangerous. It kills directly by shock—it kills indirectly by starting fires.

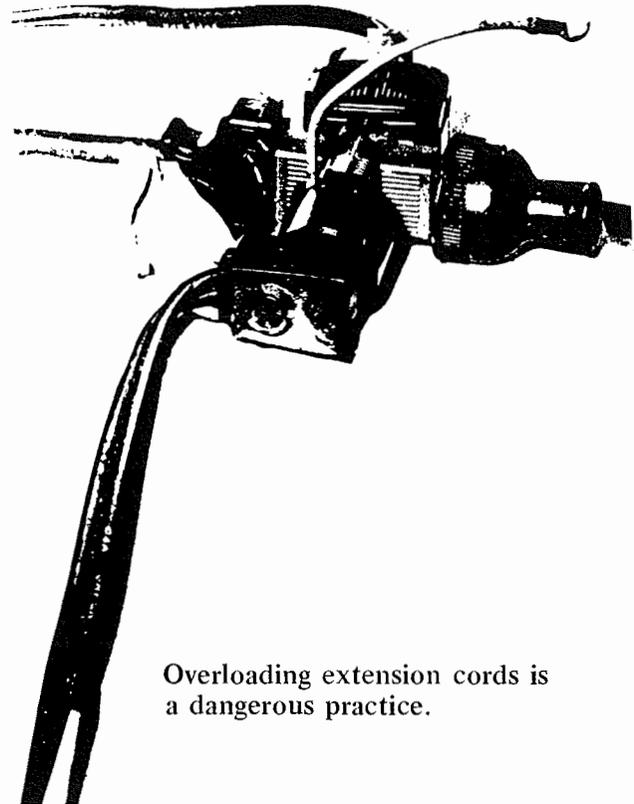
ELECTRICITY STARTS FIRES IN FOUR DIFFERENT WAYS

1. **Overcurrent.** Too much electricity passing through wiring heats it to the extent that insulation and surrounding material begin to burn.

2. **High resistance fault.** Produced by an imperfect electrical path. Examples are poor contact points or frayed wiring, where localized heating occurs and fire starts.

3. **Arcing.** An arc—where a spark leaps across a gap—is a normal occurrence in electrical devices. Usually the tiny, glowing particles are confined within the device, but a short circuit in an extension cord can start a fire. Even a tiny spark in an ordinary switch can cause gasoline vapors to explode.

4. **Hot surfaces.** Many normally operating electrical devices and appliances have outside surfaces hot enough to ignite paper, wood, and cloth. Examples are light bulbs, heaters, irons and toasters.



Overloading extension cords is a dangerous practice.

THE USUAL PROTECTIVE DEVICES WILL NOT PREVENT ELECTRICAL FIRES

Fuses and circuit breakers are intended primarily to protect the house wiring; they may not detect an overload in an extension cord or a fault in an appliance. A short circuit will usually blow the fuse or trip the circuit breaker to shut off the power after the fault has already occurred. There is generally no built-in protection either for a high resistance fault or for hot surfaces. Only your vigilance and constant attention to properly maintained electrical equipment will prevent electrical fires.

Here's how to prevent electrical fires. You've probably heard these rules before, but they're worth repeating. They could keep you or your family from being hurt or killed in a fire.

Don't Overload The Circuits. If the fuse keeps blowing or if the circuit breaker frequently trips, the circuit is probably being overloaded. (Motors, on starting, may blow a properly sized fuse. Try a dual-element fuse to correct the situation.)

Never Replace A Fuse With One Having A Higher Ampere Rating. Circuits in most older homes should use 15 amp fuses; in newer homes, 20 amp fuses. Special heavy-duty circuits for electric stoves and other appliances may utilize 25 or 30 amp or heavier fuses.

Keep Appliance Cords And Extension Cords In Good Condition. Replace rather than repair if the insulation is frayed or brittle. Don't tack extension cords to walls as substitutes for permanent wiring, and don't lay them under rugs and carpets.

Don't Use An Ordinary Extension Cord For Any Appliance Which Uses A Great Deal Of Electricity (Toaster, Iron, Heater, Air Conditioner, Etc.). An appliance which uses more than 600 watts (5 amps) should be equipped with special, heavy-duty cords with 14 or 16 gauge wires. Caution: Sometimes, extension cords may be labeled "heavy duty" when only their insulation is thicker than normal. Its wiring is only 18 gauge, which is dangerous when using high wattage appliances.

Don't Use An Appliance Which Isn't Working Properly. Get it repaired immediately.

Keep Appliances With Hot Surfaces Away From Things That Can Be Ignited. Check the underside of coffee and hot water pots, deep fat fryers, and similar heating devices. They can become hot enough to set fire to the counter or table.

Keep Paper And Cloth Away From Light Bulbs. Don't dry clothing by laying it over a lamp. Don't shield the light by covering it with material that burns.

Provide A Ground Connection For The Outside TV Antenna. Special fixtures and instructions are readily available from TV or hardware stores.

If an appliance starts smoking, or if it feels unusually hot, or if it is producing an odor, pull the plug or otherwise shut off the electricity. Don't use it again until it has been carefully checked and any fault corrected.

To avoid what could be a fatal shock, don't pour water on an appliance while it is plugged in. If the appliance is on fire, follow the emergency instructions on warning and evacuation. You'll find them at the front of this book.

SPECIAL PRECAUTIONS

Television sets with the "instant-on" feature stay energized even when switched off and have been suspected of causing fires. To be safe, use the "instant-on defeat" switch if the set is equipped with it, or plug the set into a wall outlet controlled by a switch.

Television sets need ventilation. Don't cover ventilation openings with cloth or papers, and don't place the set against walls or furniture.

Aluminum house wiring has been blamed for many electrical fires. Over a period of time, aluminum-to-copper connections at switches and outlets may become loose and a high resistance fault can occur. Inspect outlets and switch covers periodically. If they feel hot to the touch, the connections should be immediately checked and tightened, if necessary. To check for loose wiring, first disconnect all electrical power

by shutting off the circuit breaker or removing the fuse. If in doubt, consult an electrician.

DON'T OVERLOAD CIRCUITS

To determine if the circuits in your home are being overloaded add up the wattages of all the lights and appliances on each circuit. If the wattage of the appliances used at the same time exceeds 1800 watts for a 15

ampere circuit or 2400 watts for a 20 ampere circuit, the circuit is overloaded. Wattages are shown on the nameplate of all appliances or can be estimated from the table opposite.

WARNING: NEVER MAKE REPAIRS TO ANY ELECTRICAL WIRING UNLESS THE POWER IS DISCONNECTED BY OPENING THE CIRCUIT BREAKER OR REMOVING THE FUSES.

ELECTRICAL TROUBLE SHOOTING GUIDE

Symptom	Possible Causes/Corrective Action
Fuse blows or circuit breaker trips frequently	<p>Fuses only: temporary overload caused by starting current in motors/Replace fuses with dual-element time-delay type.</p> <p>Overloaded circuit/Check wattage of lights and appliances on circuit (1800 watts maximum for 15 amp circuit and 2400 watts maximum for 20 amp).</p> <p>Short Circuit/Turn off all lights and unplug all appliances. If fuses still blow or circuit breakers trip, the trouble is in the wiring, a switch, receptacle or other built-in device. A qualified electrician is needed. Check all plugs for evidence of burning or sparking. Repair or replace. If trouble is still not found, turn on lights and plug in appliances one by one. When defective device is found, disconnect until repaired or replaced.</p>
Air conditioner runs slowly	<p>Excessive voltage drop in home wiring/Have new separate circuit installed for air conditioner</p> <p>Use of improper extension cord/Put in new circuit or use a 14 gauge extension cord.</p>
Shocked from electrical appliance	Defective wiring or loose connection/Unplug until repaired.
Cover plates over outlets, switch receptacles or lighting assemblies hot, particularly when not in use	Loose wiring connection/Shutdown power and tighten connections. Refer to Underwriters' Laboratories Bulletin 48, Aluminum Building Wires & Connectors, available from UL, 207 E. Ohio St., Chicago 60611, or consult your electrician.

APPLIANCE	TYPICAL WATTAGE
Television, Hi-Fi, Mixer, Blender	250-350
Coffee Pot, Disposal	600-900
Toaster, Waffle Iron, Griddle, Fry-Pan, Deep Fryer, Hand Iron	1000-1500
Electric Room Heater, Hot Plates, Rotisserie Grill, Dishwasher, Ironer	1500-1650
Refrigerator, Freezer, Sump Pump, Vacuum Cleaner	(High momentary starting current and may require two-element fuses) 300-400

Symptom	Possible Causes/Corrective Action
Odor of burning insulation	<p>Defective ballast in fluorescent light/Replace ballast.</p> <p>Overloaded or defective extension cord or power cord/Replace with proper size cord.</p> <p>High resistance fault in electrical appliance or lighting assembly/Check each appliance or light assembly for odor or excessive heat. Replace or repair.</p> <p>Loose connection and high resistance fault at receptacle, switch or fixture/Shut off power and tighten connections. See last item, page 24.</p>
T.V. picture shrinks	Refrigerator or other motor starting/ Switch appliance to another circuit.
Lights flicker or dim periodically	<p>Temporary overload caused by motor starting/Not harmful; put motor on separate circuit if trouble is annoying.</p> <p>Wiring inadequate/Install heavy-duty wiring for high-amperage appliances; use No. 10 or No. 12 wiring to outlying buildings.</p> <p>Inadequate electric service/Add wattage of all lights, appliances and motors you use at the same time. If they exceed the rating of the electrical service into your home, a larger service must be installed.</p> <p>Loose connections with aluminum wiring/See last item, page 24.</p> <p>Power supply or service entrance problems/Contact your power company.</p>

HOUSEHOLD FIRE SAFETY CHECKLIST

To see how well you're doing in achieving a "Fire Safe" home, answer the questions in this checklist. Do it once a year to measure improvement (or worse, to determine if you and your family have become lax)! Skip questions which don't apply to you. The following is

	DATE _____		_____		_____	
	YES	NO	YES	NO	YES	NO
ESCAPE						
1. Does everyone in your household recognize the importance of getting out immediately if they even suspect the existence of a fire?	<input type="checkbox"/>					
2. Does everyone in your household know that life safety is the first consideration and that no actions (even calling the fire department) should be taken until after everyone has been alerted?	<input type="checkbox"/>					
3. Have you shown everyone in your household the ways they can get out in case of fire? Do they know more than one way out?	<input type="checkbox"/>					
4. Can all windows and doors needed for emergency escape be opened easily from the inside?	<input type="checkbox"/>					
5. Does everyone in your household know which fire department to call if you live in a suburb or rural area?	<input type="checkbox"/>					
6. Do you make it a regular practice to let your babysitters know what to do in case of fire?	<input type="checkbox"/>					
HAZARDOUS MATERIALS						
7. Is gasoline always opened, poured and used only outdoors?	<input type="checkbox"/>					
8. Is all gasoline stored in either a UL labeled safety can or a capped metal can in a shed or garage?	<input type="checkbox"/>					
9. If you have more than 1 gallon of gasoline stored, is it in a safety can?	<input type="checkbox"/>					
10. Are other flammable liquids and combustible liquids either in their original containers or in tightly capped metal cans?	<input type="checkbox"/>					
11. Do you take precautions to never use a combustible liquid to "freshen" any fire nor to start a fire in a stove not designed for liquid fuel?	<input type="checkbox"/>					
FIRE EQUIPMENT						
12. Are smoke detectors tested regularly as recommended by the manufacturer? (Monthly, unless otherwise indicated)	<input type="checkbox"/>					
13. Have new batteries been installed in battery-operated smoke detectors within the past year?	<input type="checkbox"/>					
14. Have all fire extinguishers been checked and recharged according to instructions on the nameplate?	<input type="checkbox"/>					

your Fire Safety index: 5 or more "NO" answers, You're in trouble!; 3 to 4 "NO" answers, Improvement needed; 1 to 2 "NO" answers, Good, but you can still do better; 0 "NO" answers, Congratulations for maintaining a FIRE SAFE home!

	DATE _____		_____		_____	
	YES	NO	YES	NO	YES	NO
ELECTRICAL						
15. Are all the fuses in your home the proper size? (15 or 20 amp on general circuits except special stove, dryer or air conditioner circuits.)	<input type="checkbox"/>					
16. Have you operated circuit breakers in your home several times each year to be sure they don't stick?	<input type="checkbox"/>					
17. Does the insulation on all electric cords appear to be in good condition?	<input type="checkbox"/>					
18. Are the plugs and receptacles on all electric cords attached tightly and in good condition?	<input type="checkbox"/>					
19. Have all electric outlet and switch plates been checked within the past 6 months to determine whether they are hot to the touch?	<input type="checkbox"/>					
HEATING EQUIPMENT						
20. Have you inspected the chimney this year to be sure there are no cracks or loose bricks? Are metal chimneys well supported with tight connections?	<input type="checkbox"/>					
21. Are the smoke pipes on all furnaces and heaters well supported, tightly connected and clear of combustibles?	<input type="checkbox"/>					
22. Is combustible material kept at least three feet from your furnace, heaters and stoves unless instructions permit lesser clearance?	<input type="checkbox"/>					
23. Do you oil, clean, adjust, and perform other needed maintenance on heating equipment as required by the manufacturer's instructions?	<input type="checkbox"/>					
HOUSEKEEPING						
24. Are filled wastebaskets regularly emptied?	<input type="checkbox"/>					
25. Do you keep matches and lighters away from small children?	<input type="checkbox"/>					
26. Are ashes from smoking materials emptied into the toilet, the garbage disposer or into a covered metal can?	<input type="checkbox"/>					
27. Do you use ashtrays only on solid surfaces instead of on arms or seats of upholstered furniture?	<input type="checkbox"/>					
28. Do you make a fire safety walk-through of your home before going to bed?	<input type="checkbox"/>					

