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# Surviving the Storm

*A Guide to Wildfire Preparedness*



FEMA Photo by Liz Roll

*Once a fire starts outdoors in a rural area, it is often hard to control.*

## KNOW YOUR RISKS

**M**oving from a city to a suburb or rural area requires new thinking about fire safety. Fire is a natural element in any wildland area and can quickly grow to require an army of firefighters to control. Fires cause millions of dollars in property damage annually and millions more to fight, monitor and prevent.

In 1985 the country experienced the worst wildland fires of the century. More than 83,000 fires destroyed three million acres, destroyed or damaged 1,400 homes and killed 44 people.

The biggest problem in fighting these fires is not lack of money. It's the need for the public to be aware of the dangers and to take action to prevent coming in harm's way.

Although many actions to provide fire safety for properties located in wildland hazardous areas are taken during the planning, designing, constructing, and landscaping, they do not end there.

Maintenance must begin the day occupants move in and must continue as long as the building stands, or all the original built-in protection may be in vain. There have been cases where a structure, once reasonably fire-safe, burned down after it or the area around it had been allowed to deteriorate.

People living in or near wildland areas need to know their risks – and what to do about them. This newsletter provides guidance for wildfire safety.

## Ways to Combat the Threat of Wildland Fire

Wildfires can occur with little warning and can spread quickly. Fire crews may not be able to reach every home in time or may be prevented from effective action if there is limited access or water.

However, when wildfires threaten, homeowners can take action.

### Outside the House

Remove all combustible material from around your home and outbuildings. Close all vents and shutters. Place garden hoses so they reach all parts of the house.

Have large containers of water near the house and soak large rags or burlap sacks in water to be ready to use.

Place a ladder against the roof of the house on the side opposite the approaching fire. Place a garden hose near the ladder. Turn off gas at the meter and turn off butane tanks.

### Inside the House

Close all windows and doors, but do not lock them. Fill tubs, sinks and other containers with water. Remove light, filmy curtains and drapes. Close heavy drapes or fire-resistant window coverings.

Move upholstered furniture away from windows and sliding glass doors. Put valuable papers and mementos in fire-proof containers.

### In the Garage

Park your car in the garage, facing out. Leave the keys in the ignition and close – but do not lock – the garage door. Disconnect automatic garage-door openers.



A M E S S A G E F R O M

## FEMA DIRECTOR

JAMES LEE WITT

It has often been said that when disaster strikes, the things that divide us fall away, as neighbor helps neighbor and stranger reaches out to stranger. Natural disasters test our faith. But they also remind us of the enduring power of the American people to overcome calamity, and the commitment of our national community to help people rebuild their communities.

As director of the Federal Emergency Management Agency (FEMA), disaster relief is one of my highest priorities. I am convinced that we must do more than just respond to disasters after they occur. We must prepare for them in advance. Being prepared means that communities can continue to function and individuals can avoid the traumatic disruption of their daily lives. We know that every dollar spent on disaster preparedness saves two or more dollars in future costs. That's why FEMA has launched *Project Impact*, an initiative to build disaster-resistant communities through partnerships with state and local governments, the private sector, volunteer groups and community organizations. It seems to me *Project Impact* can become a real model for every community in the country.

There is valuable information in this publication – actions you can take to reduce the risks you face from wildfires. And by following the guidance in this newsletter, you can take action now to help protect your family, your property and your community.

## If You Have to Evacuate Your Home

If a wildfire is threatening your area, listen to your radio for updated reports and evacuation information. Gather your pets and make plans to take care of them in case you must leave your home on short notice. Arrange for temporary housing with friends or relatives who live outside the threatened area. If your home is threatened by wildfire, you may be required by law enforcement officers to evacuate.

Take important papers and mementos that are not stored in fireproof containers. Wear sturdy, protective clothing and take a change of clothing and shoes for each family member. Be sure you have a disaster supply kit and an extra set of car keys, credit cards and cash or traveler's checks.

Choose a route away from the fire, if possible. Watch for changes in the speed and direction of fire and smoke. Keep the radio on for news about the path of the fire.

## PREPARE A FAMILY DISASTER PLAN

It is a good idea to develop a plan of action for you and your family to be ready for any type of disaster that could strike.

Household emergency plans should be kept simple. The best emergency plans are those that are easy to remember.

Identify family meeting places in case you are separated from each other. Choose a place in a building or park outside your neighborhood. Everyone should be clear about this location.

Be familiar with escape routes. It may be necessary to evacuate your neighborhood. Plan several escape routes for different contingencies.

Maintaining a link to the outside can be crucial. Keep a battery-

operated radio and extra batteries on hand. Make sure family members know where the radio is kept.

Post emergency phone numbers (fire, police, ambulance) by the telephone.

Teach children how to call 911 for help.

Teach household members how to turn off utilities.

Develop an emergency communication plan. In case family members are separated from one another, develop a plan for reuniting after the disaster. Ask an out-of-state relative or friend to serve as the family's contact. Make sure everyone knows the telephone number of this contact.

# PREPAREDNESS: KNOW WHAT TO DO BEFORE WILDFIRES STRIKE

For people living near or using recreational facilities in wilderness areas the threat of brush or forest fires is real. Advance planning and knowing protective measures to take can help limit the devastation of a fire.

While no one can prevent all such fires from occurring, there are actions that can prevent an emergency or lessen the damaging effects of unavoidable emergencies. Investing in preventive steps now, will help reduce the impact of wildland fires in the future.

## What to Do Before a Wildland Fire

Learn and teach safe fire practices, such as the following:

- Build fires away from nearby trees or bushes.
- Always have a way to extinguish the fire quickly and completely.
- Never leave a fire—even a cigarette—burning unattended.
- Avoid open burning completely, especially during dry seasons.

Observe local fire and building codes and weed abatement ordinances for structures built near wooded areas.

Use fire-resistant materials when building, renovating or retrofitting structures. Use only approved fire-resistant wooden shakes and shingles for a roof. Use tile, stucco, metal siding, brick, concrete block, rock or other fire-resistant building materials. Use only thick, tempered safety glass in large windows and sliding glass doors.

Create a safety zone to separate your home from combustible plants and vegetation. For example, stone walls can act as heat shields and deflect flames, and swimming pools and patios can be a safety zone.

Minimize fire hazards around home by following some of these suggestions:

- Install electrical lines underground, if possible.
- Keep all tree and shrub limbs trimmed so they don't come in contact with the wires.

- Prune all branches around the residence to a height of 8 to 10 feet. Keep trees adjacent to buildings free of dead or dying wood and moss.
- Clean roof surfaces regularly.
- Remove all dead limbs, needles and debris from rain gutters.
- Store combustible or flammable materials in approved safety containers and keep them away from the house.
- Install a spark arrestor on your chimney.
- Keep the chimney clean.

Install smoke detectors on every level of your home and near sleeping areas.

Make evacuation plans, in the event the fire comes close. Plan several routes in case the fire blocks the main escape route.

Have disaster supplies on hand, such as:

- Flashlight with extra batteries;
- Portable, battery-operated radio and extra batteries;
- First-aid kit and manual;
- Emergency food and water;
- Nonelectric can opener;
- Essential medicines;
- Cash and credit cards; and
- Sturdy shoes

Develop an emergency communication plan. In case family members are separated from one another during a wildland fire (a real possibility during the day when adults are at work and children are at school), have a plan for getting back together. Ask an out-of-state relative or friend to serve as the "family contact." After a disaster, it's often easier to call long distance. Make sure everyone knows the name, address and phone number of the contact person.

## What to Do During a Wildland Fire

Turn on a battery-operated radio to get the latest emergency information.

Remove combustible items from around

the house, such as lawn and poolside furniture, outdoor umbrellas, tarp coverings and firewood.

Take down flammable drapes and curtains and close all venetian blinds or noncombustible window coverings.

Take the following actions to protect your home:

- Close all doors and windows inside your home to prevent draft.
- Close gas valves and turn off all pilot lights.
- Turn on a light in each room for visibility in heavy smoke.
- Place valuables that will not be damaged by water in a pool or pond.
- If hoses and adequate water are available, leave sprinklers on roofs and on

## To help you, FEMA will ...

- Provide you with access to disaster assistance.
- Provide you with an opportunity to tell your story to a responsive FEMA representative.
- Treat you with respect and care.
- Give you clear, accurate information about available assistance and how to apply for it.
- Explain clearly what you need to do after registration, what you can expect from government agencies and how long the process should take.
- If you are eligible, provide you with disaster housing assistance as promptly as possible and give you an estimate of when you will receive assistance.
- Advise you on how to protect against future losses.
- Use your suggestions to improve our service.



anything else that might be damaged by fire.

Be ready to evacuate all family members and pets when fire nears or when instructed to do so by local officials.

If trapped in a wildland fire, crouch in a pond or river. Cover your head and upper body with wet clothing. If water is not around, look for shelter in a cleared area or among a bed of rocks. Lie flat and cover your body with wet clothing or soil. Breathe the air close to the ground through a wet cloth to avoid scorching your lungs or inhaling smoke.

## What to Do After a Wildland Fire

Take care when re-entering a burned area. Hot spots can flare up without warning.

Check the roof immediately and extinguish any sparks or embers. Check the attic for hidden burning sparks. For several hours afterward, re-check for smoke and sparks throughout the home.

Burning is not the only hazard facing a home in a wildfire. Some soil types are made water-repellant by fire and any bare ground poses a danger of flooding or mudslides when the next rains come. The flow of water over ground during rainstorms is increased by 10 to 40 times the normal (unburned) amount.

Consult local experts about the best way to restore the land around your home after fire.

## FEMA on the World Wide Web

To access the latest emergency information, preparedness tips, press releases and on-line editions of our newsletter *Recovery Times*, visit our web site:

<http://www/fema.gov>



FEMA Photo by Liz Roll

Create “defensible space” by thinning trees and brush within 30 feet of your home.

## FIRE-SAFE VEGETATION

Improper landscaping around homes in wildfire areas is worrisome because it can greatly increase the risk of damage in the event of fire. The amount of cleared space around a home is directly related to a home’s ability to survive wildfire. If grasses, brush, trees and other common fuels are removed, reduced or modified to lessen a fire’s intensity and keep it away from the home, it is more likely that the structure will survive.

The Colorado State Forest Service offers the following guidance.

*Grasses:* Mow grasses low in the areas close to the house, garage, outbuildings, decks and trees with low-growing branches. You can gradually increase the height of grass that grows farther from these places, but it should be no higher than 8 inches.

There are “fire-safe” seed mixes available in some parts of the country. Contact your local Soil Conservation Service for information.

*Wildflowers:* Tall, dense patches of wildflowers can be powerful fuel for fires,

particularly when the flowers are in the dormant stage. Plant wildflowers in widely separated beds. Separate beds from each other by gravel walkways, rock retaining walls or low grass areas. Do not place flowers near structures, unless beds are frequently irrigated and promptly removed when they become dormant.

*Shrubs:* Shrubs in wildland fires can serve as “ladder fuels,” enabling fire to travel from the ground into shrubs and from there to trees. Low-growing, non-resinous varieties of shrubs should be planted in small clumps away from each other and away from trees. Do not place them directly beneath windows or vents or where they might spread under wooden decks.

*Trees:* Trees can be a significant source of fire brands and, when burning, can ignite nearby shrubs, trees or structures. Consult with local plant specialists on the best trees to plant in your area. When planting trees, do not place them near structures and allow plenty of room between trees. Place the branches of trees up to 10 feet above the ground.



FEMA Photo by Liz Roll

If you live in an area where the local fire department is more than a few minutes away, know steps to take in a fire emergency

## PROTECTING YOUR PROPERTY

If you aren't sure whether your house is at risk from wildfires, check with your local fire marshal, building official, city engineer or planning and zoning administrator. They can tell you whether you are in a wildfire hazard area.

To protect your house and property, it may be necessary to make changes that vary in complexity and cost. You may be able to make some types of changes yourself. But complicated or large-scale changes and those that affect the structure of your house or its electrical wiring and plumbing should be done only by a professional contractor licensed to work in your state, county or city.

### Remove Vegetation and Combustible Materials

Something homeowners can do themselves is to remove vegetation, yard debris, and other combustible materials near the house. If the area immediately surrounding your house contains trees, shrubs and other vegetation, yard debris or other materials that burn easily, your house will be

at an increased risk during wildfires. These combustible materials provide a path by which fire from nearby areas can reach your house.

Clear the area around your house. Shrubs, brush, woodpiles and combustible debris should be removed within a radius of 30 feet. The distance between your house and nearby tree should always be greater than the height of the mature tree or at least 10 feet. Similarly, any outbuildings, such as storage sheds, should be at least as far away from the house as their height.

Rather than plant shrubs near your house, consider landscaping alternatives, such as a rock garden.

### Replace Roofing with Fire-Resistant Materials

Some roofing materials, including asphalt shingles and especially wood shakes, are less resistant to fire than others (although fire-resistant shingles and shades are available). When wildfires spread to houses, it is often because burning branches, leaves

and other debris buoyed by the heated air and carried by the wind fall on roofs. If the roof of your house is covered with non-fire-resistant wood or asphalt shingles, you should consider replacing them with fire-resistant materials.

You can replace your existing roofing materials with slate, terra cotta or other types of tile, or standing-seam metal roofing. Replacing roofing materials is difficult and dangerous work. Unless you are skilled in roofing and have all the necessary tools and equipment, you should hire a roofing contractor. A roofing contractor also can advise you on the relative advantages and disadvantages of various fire-resistant roofing materials.

Keep these points in mind if you plan to have your existing roofing materials replaced:

- Tile, metal, and slate are more expensive, but if you need to replace your roofing anyway, it may be worthwhile to pay a little more for the added protection these materials provide.
- Slate and tile can be much heavier than asphalt shingles or wood shingles. Your roofing contractor should determine whether the framing of your roof is strong enough to support them.
- If you live in an area where snow loads are a problem, consider switching to a modern standing-seam metal roof, which usually will shed snow efficiently.
- If you live in an area where hurricanes or tornadoes are a problem, consider having the roof connected to the frame of the house with hurricane straps.

*Surviving the Storm* is a special edition of *Recovery Times*, developed by the **Federal Emergency Management Agency**.

Additional copies of *Surviving the Storm* are available by calling **1-800-480-2520**. Comments may be sent via the Internet to [eipa@fema.gov](mailto:eipa@fema.gov) or by mail to FEMA, EIMA, 500 C Street, SW, Washington, DC 20472.

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# If You Want to Help After a Disaster

When disaster strikes, people everywhere want to help those in need. To ensure that this compassion and generosity are put to good use, keep these facts in mind.

Financial contributions should be made through recognized voluntary organizations to help ensure that contributions are put to their intended use.

Before donating food or clothing, wait for instructions from local officials. Immediately after a disaster, relief workers usually don't have the time or facilities to set up distribution channels. Too often these items go to waste.

Volunteers should go through recognized voluntary agencies, such as the American Red Cross or the Salvation Army. They know what is needed and are prepared to deal with the need. Local emergency service officials also coordinate volunteer efforts.

Organizations and community groups wishing to donate items should first contact local officials, the American Red Cross or the Salvation Army to find out what is needed and where to send donations. Be prepared to deliver items to one place. Tell officials when it will be delivered and provide transportation and people to unload the shipment.

FEMA Photo by Liz Roll



*Rural fire problems can be reduced if people learn to recognize the hazards*

## WILDFIRES SAFETY CHECKLIST

- Have you discussed a fire safety plan with your family?
- Does everyone know where to meet if you have to evacuate your home?
- Is your house number and/or name clearly posted at the driveway entrance or mailbox?
- Are ladders, fire extinguishers and other tools readily available for emergencies?
- Are decks, porches and other raised extensions protected with fire-resistant materials or screened to keep out sparks?
- Does your driveway allow easy access (and egress) for emergency vehicles?
- If you don't have a fire hydrant nearby, is there a water storage tank with a fire-hose adapter available for firefighters to use?
- Are exterior walls made of stone, brick or other fire-resistant materials? Is electrical wiring installed underground or are trees trimmed to avoid overhead wires?
- If there is a swimming pool, do you have a gas-powered pump for wetting your roof and vegetation?
- Is your roof made of fire-resistant materials such as asphalt, tile, slate, asbestos or concrete shingles?
- Have you cleared at least 30 feet of space (100 feet on a sloping lot) around your home dry grass, underbrush and dead wood?
- Have you removed trees growing through porches, decks or roofs?
- Are the lower branches of trees taller than 18 feet pruned within 10 feet of the ground? Have trees been pruned to avoid limbs hanging over the roof or chimney?
- Do you keep roofs and gutters free of dead leaves, pine needles and other debris?
- Is your firewood stored at least 50 feet from your house?