## Living With Fire

a Guide for the Homeowner



## **New Mexico**

















#### Do You Know What It Takes To Survive Wildfire?

#### **Fire Adapted Community (FAC):**

A community located in a fire-prone area that requires little assistance from firefighters during a wildfire. Residents of these communities accept responsibility for living in a high fire-hazard area. They possess the knowledge and skills to...

- · Prepare their homes and property to survive wildfire.
- Evacuate early, safely and effectively.
- Survive, if trapped by wildfire.

#### New Mexico at Risk

There is more wildfire in our future and for many areas in our state, it is not a matter of "if" wildfire is going to occur, but "when." Unfortunately, many New Mexican's and their homes are not prepared to survive wildfire. Faced with the growing potential for loss of human life and property due to wildfire, New Mexico's local, state and federal firefighting agencies have come together to promote the Living With Fire FAC concepts. They believe that while individual fire adapted homes are good, entire communities becoming fire adapted is the best response to help decrease our wildfire threat.

In this Living With Fire Guide you will find proven steps that homeowners and communities can take to help protect your family and property during wildfire. Responsibility and preparation is where it starts.



Fire Adapted Community: This fuelbreak in the community of Heatherland Hills, New Mexico creates good access for firefighters. Ignition-resistant building construction and defensible landscapes could also help ensure no homes or lives are lost from a future wildland fire.



#### Who Wins, Who Loses

Why do some houses survive a wildfire, while others are destroyed? Research findings prove that house survival during wildfire is not random, miraculous, or dumb luck. Rather, it is the features of the house, the characteristics of the adjacent vegetation and other fuels, and routine maintenance that often determine which homes burn and which survive. These types of actions are called pre-fire activities. Pre-fire activities are actions completed before a wildfire occurs that improve the survivability of people and the home. The winners will be the people who implement pre-fire activities. When everyone in the neighborhood completes their pre-fire activities, they start becoming a FAC.

#### Human Behavior is Just as Important as Fire Behavior in Saving Your Home!

#### **Before the Fire**



#### **During the Fire**



After the Fire

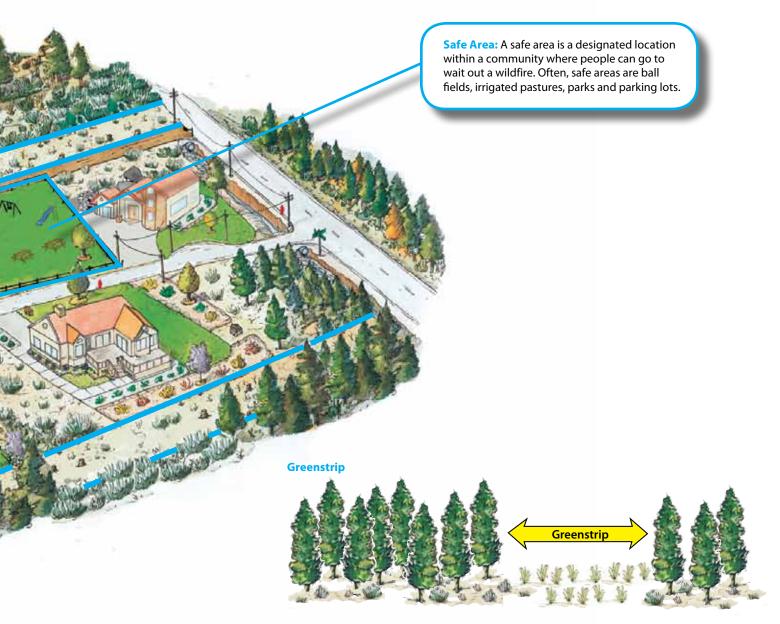


Prior to the fire, this homeowner changed the roof material from wood shakes to fire-resistant tiles and reduced the amount of flammable vegetation surrounding the home These pre-fire activities helped this house survive the fire.

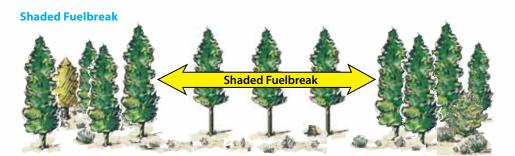
## **Community Protection**



Fuelbreak: A fuelbreak is a strip of land where highly flammable vegetation is removed to reduce the wildfire threat. Fuelbreaks change fire behavior by slowing it down, reducing the length of flames and preventing the fire from reaching tree canopies. Fuelbreaks can improve the success of fire retardant dropped from the air, provide a safer area for firefighters to operate and allow for easier creation of firelines (a strip of bare ground established during a wildfire). Shaded and greenstrip are types of fuelbreaks. Community fuelbreaks are particularly effective when integrated with the defensible space of adjacent homes. They can be manmade or naturally occurring (rock outcrops, rivers and meadows).

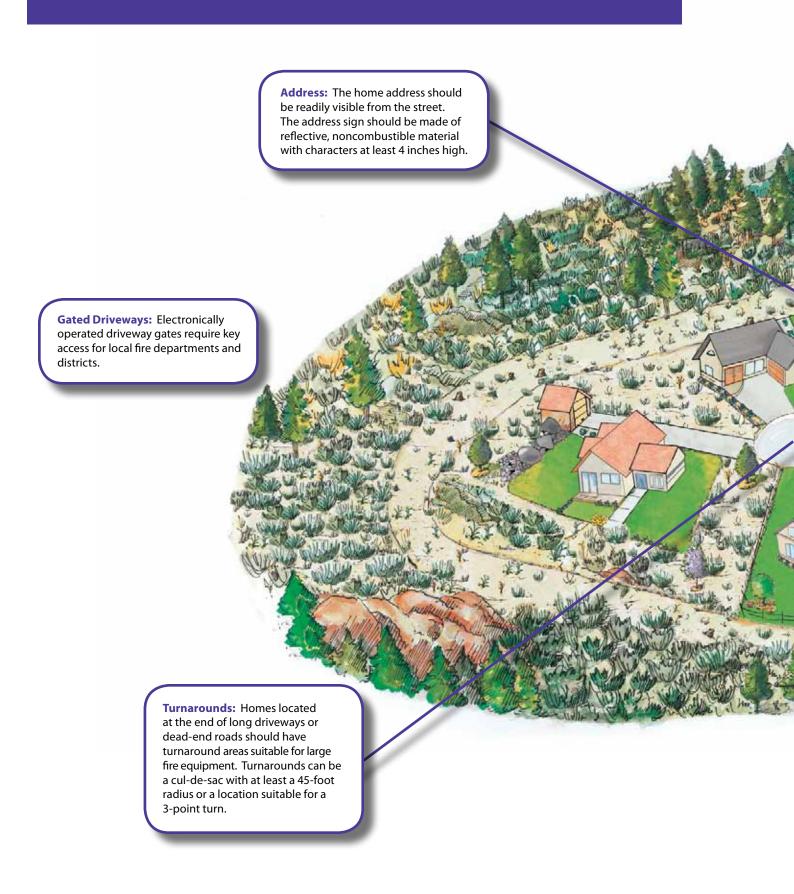


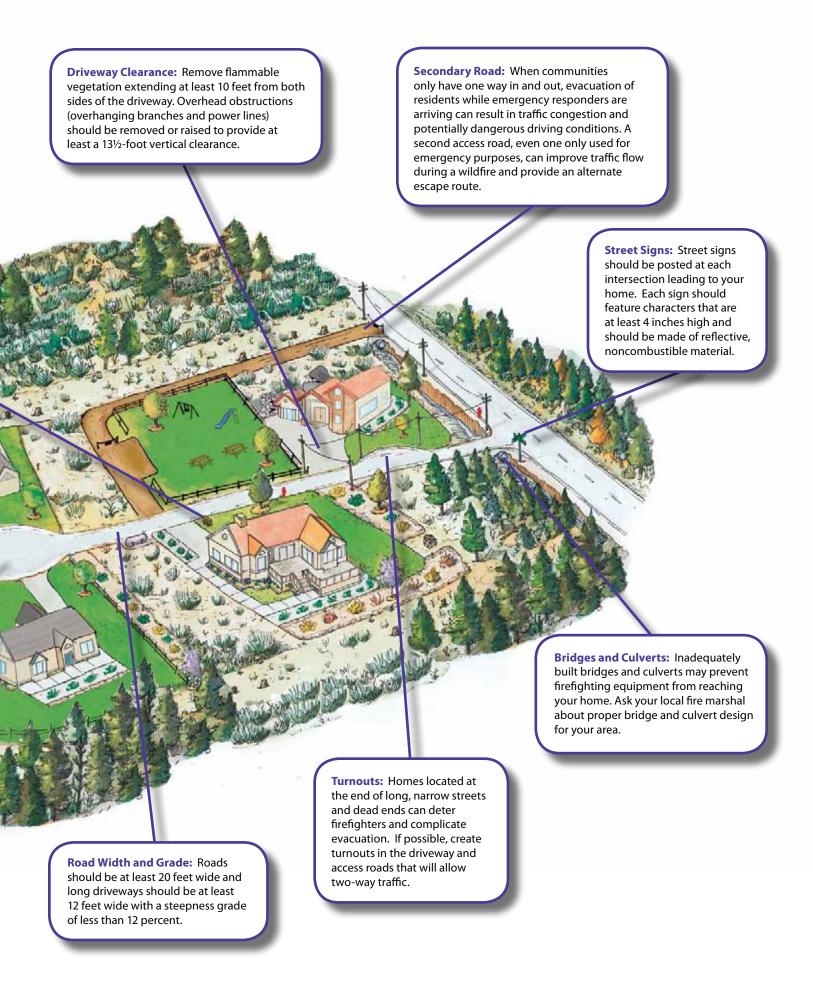
A greenstrip is a type of fuelbreak planted with less flammable vegetation.



A shaded fuelbreak is created on forested lands when trees are thinned, tree canopies raised by removing lower branches and the understory vegetation managed to reduce the fire threat.

## Access



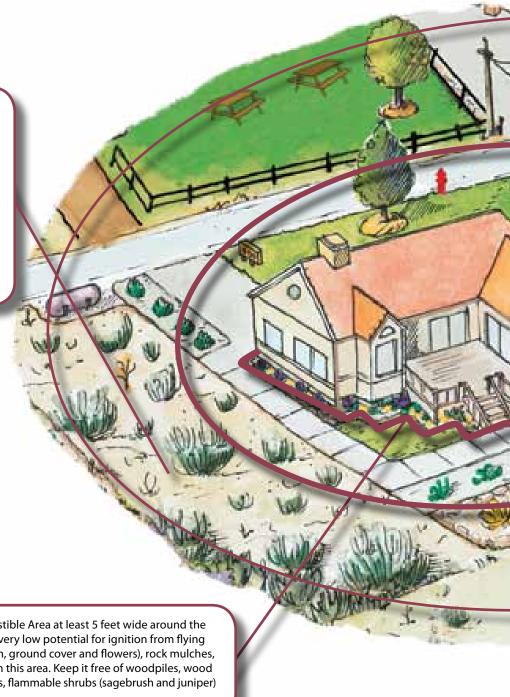


## **Defensible Space**

Wildland Fuel Reduction Area: This area usually lies beyond the residential landscape area and is where sagebrush, cheatgrass, piñon and other wild plants grow.

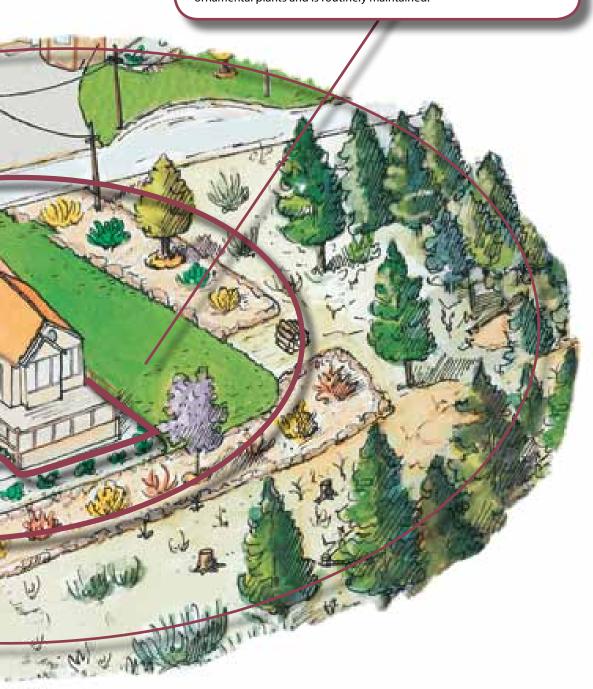
#### Within this area:

- Remove all dead vegetation (dead shrubs, dried grass and fallen branches).
- Thin out thick shrubs and trees to create a separation between them.
- Prevent ladder fuels by removing low tree branches, and removing or pruning any shrubs under the tree.



**Noncombustible Area:** Create a Noncombustible Area at least 5 feet wide around the base of your home. This area needs to have a very low potential for ignition from flying embers. Use irrigated herbaceous plants (lawn, ground cover and flowers), rock mulches, or hard surfaces (concrete, brick and pavers) in this area. Keep it free of woodpiles, wood mulches, dead plants, dried leaves and needles, flammable shrubs (sagebrush and juniper) and debris.

**Lean, Clean and Green Area:** For a distance of at least 30 feet from the home, there should be a Lean, Clean and Green Area. Lean indicates that only a small amount of flammable vegetation, if any, is present within 30 feet of the house. Clean means there is no accumulation of dead vegetation or flammable debris within the area. Green denotes that plants located within this area are kept healthy, green and irrigated during fire season. For most homeowners, the Lean, Clean and Green Area is the residential landscape. This area often has irrigation, contains ornamental plants and is routinely maintained.



See page 12, Five Steps to Creating an Effective Defensible Space

## **Built Environment**

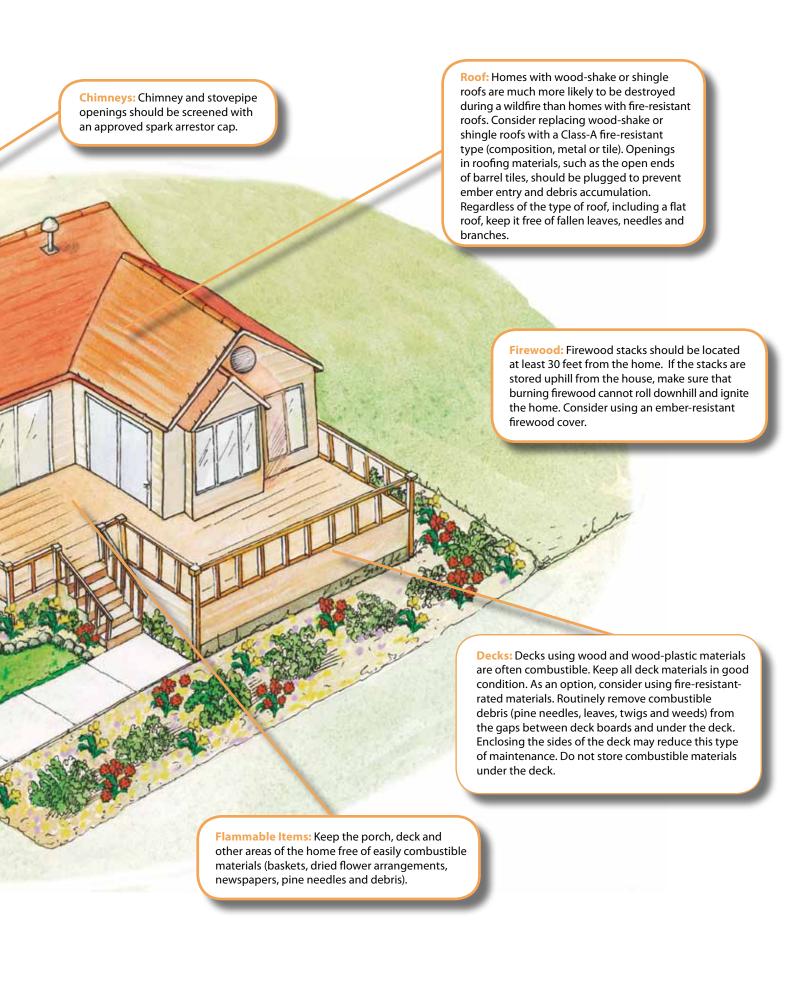
Eaves: Embers can accumulate under open eaves and enter the attic through gaps in construction materials. Covering the underside of the eaves with a soffit, or boxing in the eaves, reduces the ember threat. Enclose eaves with fiber cement board or 5/8-inch-thick, high-grade plywood. If enclosing eaves is not possible, fill gaps under open eaves with caulk.

**Exterior Siding:** Wood products (boards, panels and shingles) are common siding materials. However, they are combustible and not good choices for fire-prone areas. Noncombustible siding materials (stucco, brick, cement board and steel) are better choices. If using noncombustible siding materials is not feasible, keep siding in good condition and replace materials in poor condition.

Windows and Skylights: Windows are one of the weakest parts of a home and usually break before the structure ignites. This allows burning embers and heat to enter the home, which may lead to internal ignition. Single-pane windows and large windows are particularly vulnerable. In high fire-hazard areas, install windows that are at least double-glazed and that utilize tempered glass for the exterior pane. The type of window frame (wood, aluminum or vinyl) is not as critical. However, vinyl frames should have metal reinforcements. Keep skylights free of pine needles leaves and other debris, and remove overhanging branches. If skylights are to be placed on steep pitched roofs that face large amounts of nearby fuels (a mature pine tree or another house), consider using flat ones constructed of double-pane glass.

Vents: Attic, eave and foundation vents are potential entry points for embers. All vent openings should be covered with 1/8-inch or smaller wire mesh. Another option is to install ember-resistant vents. Do not permanently cover vents, as they play a critical role in preventing wood rot.

Rain Gutters: Rain gutters trap flying embers. Always keep rain gutters free of leaves, needles and debris. Check and clean them several times during fire season.



#### 5 Steps to Creating an Effective Defensible Space

The term defensible space refers to the area between a house and an oncoming wildfire where the vegetation has been managed to reduce the wildfire threat and allow firefighters to safely defend the house.

In the event that firefighters are not available, defensible space also improves the likelihood of a home surviving without assistance. Unfortunately, when some homeowners hear the term defensible space, they envision a large expanse of bare ground surrounding their home. While bare ground is certainly effective at increasing home survivability, it can detract from the home's aesthetics and contribute to soil erosion. It is also unnecessary.



#### **Step One**

The size of the defensible space is usually expressed as a distance extending outward from the house in all directions. The recommended distance is not the same for every home. It varies depending on the dominant vegetation surrounding the home and steepness of slope. Use the Recommended Defensible Space Distance table to determine the right space for your home.

Once the recommended distance for defensible space is known, mark it by tying strips of cloth or flagging to shrubs. This becomes the Defensible Space Zone.

If the Defensible Space Zone exceeds your property boundaries, seek permission from adjacent landowners before doing work on their property. It is important to note that the effectiveness of the Defensible Space Zone improves when entire neighborhoods implement defensible space practices.



Photos courtesy New Mexico State Forestry



A homeowner can have both an effective defensible space and an attractive landscape.



#### **Step Two**

Within the recommended Defensible Space Zone, remove:

- · Dead and dying trees.
- · Dead native and ornamental shrubs.
- Dead branches.
- Dead leaves, needles and twigs that are still attached to plants, draped on live plants or lying on the ground within 30 feet of the house.
- · Dried grass, weeds and flowers.



Defensible space distance is measured from the base of the house, extending outward.

RECOMMENDED DEFENSIBLE SPACE DISTANCE			
	Flat To Gently Sloping 0-20%	Moderately Steep 21-40%	Very Steep +40%
Grass Dry grass (cheatgrass and weeds).	30 feet	100 feet	100 feet
Shrubs and Woodland (sagebrush, piñon and juniper).	100 feet	200 feet	200 feet
Trees Forest trees (pine). If there's a substantial shrub understory, use those values stated above.	100 feet	100 feet	200 feet

# CREATE SEPARATION

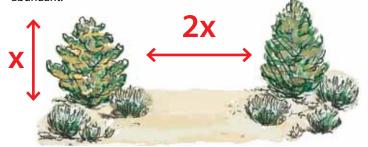
#### **Step Three**

Within the Defensible Space Zone, native trees and shrubs, (pine, piñon, juniper and sagebrush) should not occur in dense stands. Dense stands of trees and shrubs pose a significant wildfire threat. Thin dense tree and shrub stands to create more space between them.

#### Sagebrush, other Shrubs, Piñon and Juniper

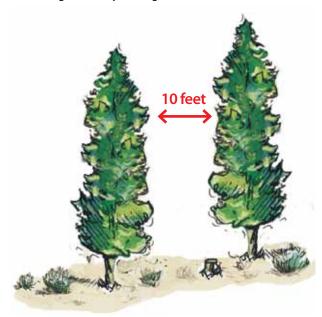
On flat to gently sloping terrain, individual shrubs or small clumps of shrubs within the Defensible Space Zone should be separated from one another by at least twice the height of the average shrub. For homes located on steeper slopes, the separation distance should be greater.

For example, if the typical shrub height is 2 feet, then there should be a separation between shrub branches of at least 4 feet. Remove shrubs or prune to reduce their height and/or diameter. In most instances, removing big sagebrush is the preferred approach. It is a very flammable plant, is easily removed, does not re-sprout and is typically abundant.



#### **Large Trees**

On flat to gently sloping terrain, Ponerosa pine and fir should be thinned to provide an average separation between canopies of at least 10 feet. For homes located on steeper slopes, the separation distance should be greater. When selecting trees for removal, consider cutting unhealthy, damaged or weak trees.





Dense trees and vegetation pose a high fire threat.

## NO LADDER FUELS

#### **Step Four**

Vegetation that can carry a fire from low-growing plants to taller plants is called ladder fuel. Lower tree branches should be removed to a height of at least 10 feet.



Shrubs and trees growing under the drip line should also be removed. Irrigated, well-maintained lawns and flowerbeds, as well as low-growing ground-covers can be present under the tree's drip line as long as they would not allow a fire to ignite the tree. Removal of tree branches should not exceed one third of the total tree height. Removing more than this can be detrimental to tree health.







#### **Step Five**

There are two goals for the Lean, Clean and Green Area. The first goal is to eliminate easily ignitable fuels, or kindling, near the house. This will help prevent embers from starting a fire in your yard. The second goal is to keep fire intensity low if it does ignite near the house.

By proper management of the fuels near the house, a fire would not be able to generate enough heat to ignite the home.

For most homeowners, the Lean, Clean and Green Area is also the residential landscape. This area often has irrigation, is planted with ornamental vegetation and is regularly maintained.

#### Lean, Clean & Green Tips

- Remove most or all flammable wildland plants, including sagebrush, bitterbrush, rabbitbrush/ chamisa, dry grass, yucca, oak, broom snakeweed, piñon and juniper. If you wish to retain a few of these as specimen plants, make sure they are free of dead wood and leaves, pruned to reduce the amount of fuel and separated from adjacent brush and grass fields.
- Select less flammable plants for the home landscape. Some rules of thumb in selecting landscape plants for the Lean, Clean and Green Area are:
  - Shorter plants, less than 2-feet tall, are better choices than taller plants.
  - Green, herbaceous plants (grass and nonwoody flowers) are better choices than shrubs and trees.
  - Deciduous shrubs and trees are better choices than evergreen types. Avoid planting juniper and cedar pine.
- Emphasize the use of hard surfaces (concrete, asphalt and brick). Within 30 feet of the house, do not use wood mulches in a widespread manner, and do not use rubber mulches.
- Clear all flammable vegetation from within 10 feet of the propane tank.
- Remove tree limbs that are within 10 feet of the chimney, touching the house or deck, within 6 feet of the roof or encroaching on power lines.
- Create a noncombustible area at least 5-feet wide around the base of the house. Emphasize the use of irrigated herbaceous plants, (lawn, ground covers and flowers). Also use rock mulches and hard surfaces.



**Defensible Space:** This home survived the Old Stage Fire in Boulder, Colorado (2009). The homeowner was proactive and created a Lean and Clean area giving firefighters good access to perform a burn out operation around the home in order to save it.

#### **Maintenance**

Maintaining a defensible space is an ongoing activity. Plants grow back and flammable vegetation needs to be routinely removed and disposed of properly. Before each fire season, re-evaluate your property using the previous five steps and implement the necessary defensible space recommendations.





Remove flammable vegetation and dispose of properly.



#### Little Green Gas Cans

Firefighters often refer to ornamental junipers as little green gas cans. During a wildfire involving homes, embers can smolder undetected under ornamental junipers. The junipers can then ignite and burn intensely after firefighters have left the area. Planting ornamental junipers next to your house is never a good idea. Keep these little green gas cans at least 30 feet from the house or replace them with low-growing deciduous shrubs, herbaceous flowers, rock mulches and hard surfaces.

## **Evacuation**

#### **Preparation**

A key component of Living With Fire is residents who know how to safely and effectively evacuate. Successful community evacuation requires preparation. The following checklists provide recommendations concerning proper evacuation preparation.

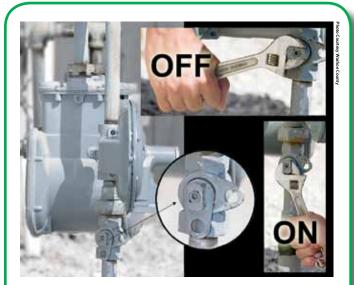
## Elements of Family Emergency Planning and Preparation

- Meet with household members. Explain dangers to children, and work as a team to prepare your family for emergencies.
- Discuss what to do about power outages and personal injuries.
- Post emergency phone numbers near phones.
- Learn how to turn off the water, gas (see inset) and electricity at your home.
- Select a safe meeting point.
   During an emergency, you may become separated from family members.
- Choose an out-of-town contact because it is often easier to make a longdistance phone call than a local call from a disaster area.
   Everyone must know the contact's phone number.
- Complete a family communications plan. Your plan should include contact information for family members, work and school.

- Teach children how to make long-distance phone calls.
- Complete an inventory of home contents and photograph/videotape the house and landscape. Place files in your to-go bag (see page 16). A second copy of these files should be stored in a location away from your home.
- Identify escape routes and safe places. In a fire or other emergency, you may need to evacuate very quickly. Be sure everyone in your family knows the best escape routes out of your home and where safe places are in your home for each type of disaster. Draw an escape plan with your family highlighting two routes out of each room.
- Prepare EVACUATED sign and if you have an emergency water source (pool, pond or hot tub), a WATER SOURCE HERE sign. Select a site to post signs where they will be clearly visible from the street.

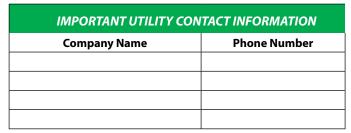


A family emergency plan is essential in the evacuation process.



#### **How to Shut Off the Gas Supply**

Attach a wrench to the gas meter with a wire so it is readily accessible in the event of an emergency. Use the wrench to turn the valve until it is perpendicular to the pipe. Be aware that once your gas is turned off, all your pilot lights will need to be relit when turning the gas back on. It is advisable to contact your gas provider at that time.



Content for the Evacuation section adapted with permission from Ready, Set, Gol, International Association Of Fire Chiefs.

#### To-Go Bag and Disaster Supplies Kit

Prepare for at least three days, but preferably seven days. The best time to assemble a to-go bag and disaster supplies kit is well before you need them. Most of these items are already in your home and stocking up on emergency supplies now can add to your family's safety and comfort during and after a disaster.

#### Essentials for a Disaster Supplies Kit

If you anticipate an extended evacuation at an emergency shelter or your family is returning to a home without functioning electricity and water, these items will prove helpful:

- One gallon of water per person, per day stored in unbreakable containers and labeled with the storage date. Replace every six months.
- ☐ Supply of non-perishable packaged or canned foods with a hand-operated can opener.
- ☐ Anti-bacterial hand wipes or gel.
- ☐ First aid kit, including a first aid book.
- □ At least one blanket or sleeping bag per person.
- □ ABC-type fire extinguisher.
- □ Special items for infants, elderly or disabled family members.
- □ Large plastic trash bags, tarps and rain ponchos.
- ☐ A large trash can.
- □ Bar soap, liquid detergent and household bleach.
- □ Rubber gloves and duct tape.



#### **Preparing Pets and Livestock**

Plan to take your animals with you and never turn them loose. Animals may not be allowed inside human emergency shelters. Contact your county's animal services department for advice on animal evacuation.

- ☐ Make sure dogs and cats wear properly fitted collars with identification, vaccination, microchip and license tags.
- Your pet evacuation plan should include routes, transportation needs and host sites. Share this plan with trusted neighbors in your absence.
- Exchange veterinary information with neighbors and file a permission slip with the veterinarian authorizing emergency care for your animals if you cannot be located.
- Make sure all vehicles, trailers and pet carriers needed for evacuation are serviced and ready to be used.
- Assemble a pet to-go bag with a supply of food, non-spill food and water bowls, cat litter and box and a restraint (chain, leash or harness). Additional items to include are newspaper and paper towels, plastic bags, permanent marker, bleach/disinfectant solution and water buckets.

#### **Essentials for a To-Go Bag**

The to-go bag should be easily accessible and filled with items needed to help you quickly and safely evacuate your home. When a wildfire is approaching, you may only have enough time to retrieve this bag.

- □ Clothing and personal toiletries.
- Inventory of home contents and photographs/videotape of the house and landscape. Contact your insurance agent for an inventory checklist.
- ☐ Flashlight, portable radio tuned to an emergency radio station and extra batteries. Change batteries annually.
- ☐ Extra set of car and house keys.
- □ Extra pair of eyeglasses.
- □ Contact information for family, friends and physicians.
- □ Copy of this publication.



## How to Address the Special Needs of Vulnerable Populations During an Evacuation

During a disaster, it is essential that individuals with special needs, including the elderly, people with medical problems and people with certain disabilities, receive proper care.

- ☐ If the family member is dependent upon medications, equipment or has special dietary needs, plan to bring those items with you. Documentation about insurance and medical conditions should also accompany the person.
- ☐ Transportation available to the general public during an emergency evacuation may not be suitable for family members with special needs. Plan ahead for their transportation.
- Many special needs populations are easily upset and stressed by sudden and frightening changes. Your plans should ensure that a caregiver or trusted family member is able to stay with them at all times during an evacuation.



## Your Family is Prepared for an Emergency Evacuation When You Have:

- ☐ Made a Family Emergency Plan.
- ☐ Registered with your local emergency notification system if this service is available in your area
- ☐ Registered with your phone tree captain, if one has been established in your community.
- Practiced an evacuation drill including, using two of the recommended evacuation routes out of the community.
- ☐ Arranged for transportation out of the affected area if you do not drive
- Familiarized yourself and your family with the location of local evacuation centers.
- Designated a safe meeting place and contact person for you and your family members.
- Assembled a family to-go bag, a disaster supplies kit and a pet to-go bag.
- □ Inventoried home contents and videotaped/photographed property and placed in to-go bag.
- Reviewed the animal/livestock evacuation recommendations and assembled supplies needed for their care in a pet to-go bag.
- Reviewed the supplemental fire-preparedness information available at www.livingwithfire.info
- ☐ Prepared EVACUATED and WATER SOURCE HERE signage.

#### **Notification**

No single method of communication is failsafe during an emergency, so regional public safety officials use a combination of five methods to keep the public informed during an emergency.

- Local government public information officers can prepare and distribute press releases for broadcast by local media outlets.
- Emergency managers can initiate the Emergency Alert System, which interrupts local radio and television broadcasts with important information.
- ☐ Public safety officials can issue emergency messages over social
- First responders and credentialed volunteers can go door-to-door to alert citizens.
- If applicable, the local emergency notification system can be used to automatically call affected residents (check with village/city/ county.)

There is no guarantee that every citizen will be contacted, but these five methods allow regional officials to quickly notify large sections of the local population. As another option, consider establishing an emergency phone tree in your neighborhood in conjunction with your local fire department.





#### **Emergency Notification System**

Several New Mexico counties employ emergency notification systems capable of calling telephones and sending emails and text messages to a particular area, providing a prepared message during an emergency. However, you may not receive the message if the electricity fails, if you are not at home when an emergency occurs, or if your contact information is not included in the notification system database.

Check with your county's emergency management department, local fire department or Sheriff's department to see if your county employs an emergency notification system and how you can register for alerts.



#### **Evacuation Terms**

**Exclusion Zone** - An area established by the commander in charge of the disaster scene into which entry is temporarily forbidden due to extreme danger. Only official responder vehicles are allowed entry until the situation is deemed safe again.

**Evacuation Advisory** - An advisory is issued when there is reason to believe the emergency will escalate and require mandatory evacuations and provides residents time to prepare for evacuation.

**Voluntary Evacuation** - Voluntary evacuation is used when an area will most likely be impacted and residents are willing and able to leave before the situation worsens. This is helpful for residents with medical issues, pet owners and others who need more time to evacuate.

**Mandatory Evacuation -** When the situation is severe and lives may be in danger, the governor has the authority to order mandatory evacuations. Should this occur, you must leave the area immediately. Follow any instructions you receive from law enforcement officers or fire officials.

#### **IMPORTANT CONTACT INFORMATION** Call 911 to report any life threatening emergency Fill in phone numbers and website information below for use during an emergency Website **Service Provider Phone Number** American Red Cross www.redcross.org/local/az-nm-el-paso New Mexico State Police www.nmsp.dps.state.nm.us Salvation Army www.salvationarmyusa.org **Animal Services Department Emergency Management Department** Local Fire Department Police Department Sheriff's Office

#### **Helpful Links**

New Mexico State Forestry www.nmforestry.com

New Mexico Fire Information nmfireinfo.com

InciWeb Incident Information System (nationwide) inciweb.nwcg.gov

Ready, Set, Go! wildlandfirersg.org

Firewise nfpa.org

One Less Spark readyforwildfire.org

After Wildfire Guide afterwildfirenm.org



Photo courtesy New Mexico State Forestry



NM Department of Homeland Security nmdhsem.org/wildfire-preparedness

Protect Your Health During Fires & On Smoky Days nmtracking.org

Smokey Bear smokeybear.com

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