



**Strengthening Homes  
and Safeguarding Families**

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## Lightning

### A Lightning Overview

#### What is Lightning?

Lightning is caused by the attraction between positive and negative charges in the atmosphere, resulting in the buildup and discharge of electrical energy. A lightning flash can happen in half a second. In that instant, the lightning flash superheats the surrounding air to a temperature five times hotter than that on the surface of the sun, or 50,000 degrees Fahrenheit. Nearby air expands and vibrates, forming sound that we hear as thunder.

Here's an interesting note: Sound travels more slowly than light, so it seems that thunder actually occurs later.

#### The Dangers of Lightning

Lightning is one of the most underrated severe weather hazards, yet it ranks as the second-leading weather killer in the United States. More deadly than hurricanes or tornadoes, lightning strikes in America each year kill an average of 73 people and injure 300 others, according to the National Weather Service.

#### Victims of Lightning

More people are killed by lightning than by any other kind of storm, including hurricanes and tornadoes. There are thousands of lightning strikes every day. Scientists think that lightning hits somewhere on the earth about 100 times every second. While it is difficult to obtain accurate statistics on lightning injuries and fatalities, it is estimated that each year, in the United States alone, lightning is responsible for the deaths of a hundred people, injuries to several hundred more, and millions of dollars in property damage. Eighty - five percent of lightning victims are children and young men between the ages of 10 and 35 engaged in recreation or work.

#### Health Injuries Caused by Lightning

Twenty percent of lightning strike victims die and 70% of survivors suffer serious long-term after-effects. Many case histories show heart damage, inflated lungs and brain damage. Loss of consciousness, amnesia, paralysis and burns are reported by many who have survived. Lightning strikes also result in deaths and injuries to livestock and other animals, thousands of forest and brush fires, as well as millions of dollars in damage to buildings, communications systems, power lines, and electrical systems.

### The 30-30 Lightning Rule

#### The 30-30 Rule

Use the 30-30 rule to determine the threat of lightning in your area.

30 seconds: Count the seconds between seeing lightning and hearing thunder.

If this time is less than 30 seconds, lightning is still a potential threat. Seek shelter immediately.

30 minutes: After the last lightning flash, wait 30 minutes before leaving shelter. Half of all lightning deaths occur after a storm passes. Stay in a safe area until you are sure the threat has passed.

## Animated How-To: Lightning

### Lightning

According to the National Weather Service, lightning strikes somewhere on the surface of the earth 100 million times each day.

Each strike of lightning contains about one billion volts of electricity. That's enough energy to light a 100-watt bulb for three months.

With all that power it's amazing many researchers call lightning the most underrated of all weather hazards.

Lightning is the second leading cause of storm deaths in the United States. In addition, lightning causes millions of dollars in property damage in this country alone.

But the good news is most personal injury and property damage caused by lightning can be prevented.

At the first sign of lightning or thunder, seek shelter. Good shelters are substantial buildings or fully enclosed vehicles like a car, truck or van. Be sure to keep the windows completely shut.

Unsafe places are open spaces like sports fields and golf courses, high ground or under trees. Be sure to stay away from metal objects including small machinery, electric wires or equipment, and metal fences.

If you are outside use the 30-30 rule. When you see lightning, count the time until you hear thunder. If this time is less than 30 seconds, go inside. Then wait 30 minutes or more after hearing the last thunder before going outside.

If you are indoors, avoid water, stay away from windows and doors, do not use the telephone, turn off, unplug, and stay away from appliances, computers, power tools and television sets. Lightning can strike electric and phone lines causing shocks or surges to inside equipment.

Consider installing Surge Protective Devices (SPD) on electrical equipment. These systems can provide significant protection for electronic and electrical appliances. Be sure to keep them installed at all times.

### Lightning Protection Systems

Also consider adding a Lightning Protection System - these systems include lightning rods and air terminals. They provide a direct path for lightning to follow to the ground rather than through the house and its wiring.

However a lightning protection system will not protect a home from fire or electrical damage from lightning entering through the telephone, cable or electrical lines. Whole house surge protection devices are needed for this type of lightning strike.

A Whole House Surge Protection System can be installed by the electric meter or the main electrical panel to help protect the appliances and electrical equipment in your home.

Contact your local electric company for installation information or a qualified electrician or contractor for installation.

And for more information about protecting your home and family visit [flash.org](http://flash.org)

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## Animated How-To: Safe Landscaping

### Trees

Take a look around your home. The landscaping can be attractive but is it as safe as it can be in the event of a natural disaster?

Every year falling trees and limbs cause hundreds of millions of dollars in damage as well as personal injuries and deaths.

In Orlando it's estimated that more than 20,000 trees were lost in that city alone due to Hurricane Charley.

Whether it's a hurricane, tornado, ice storm or wildfire - trees that are old, weak, diseased, not properly maintained or just in the wrong place can be a dangerous hazard to your home.

But there are ways to protect your home and family from damage and injury caused by trees. Here are some suggestions.

#### 1. Choose the Right Tree

Some varieties of trees are more prone to storm damage than others. Thousands of homes have been damaged because nearby trees were wrong for the soil or region where they were planted.

A strong wind can easily topple a shallow rooted tree growing in soft soil.

City foresters, county extension offices, local nurseries and landscape firms can provide advise on tree selection for your area and soil conditions.

#### 2. Learn how to care for your trees

Regular and proper pruning can strengthen the health and vitality of your trees.

Removal of dead, diseased or damaged parts of the tree will also stop the spread of disease and harmful insects that can significantly weaken or destroy your tree.

Consider these pruning tips:

Avoid pruning branches flush to the tree. Doing so removes not only the limb but part of the trunk, opening the tree to possible decay or insect damage.

#### 3. Learn how to spot potential problems early

Homeowners are the first line of defense against problem trees - regularly check for signs of damage or disease including:

Cracks in the trunk or major limbs

Insect infestations

Trees that look one-sided or that lean significantly

Branches hanging over the house or near the roof

Limbs in contact with power lines

Mushrooms growing from the bark signaling decay

Crossing branches that rub or interfere with each other

Tree care professionals including arborists, can examine trees for more subtle signs of weakness and take care of problems including pruning limbs that may be too big or too high for a homeowner to take down safely.

#### **4. Plant with Wildfire in Mind**

In recent years, thousands of homes have been burned and lives lost because of wildfire and in many cases improper landscaping has contributed to the problem.

In areas of wildfire risk, landscaping should be considered an essential part of fire protection.

Create a defensible space around your home using this rule - clear at least 30 feet around your home, 50 feet if your are in a heavily wooded area or 100 feet if you live on a hillside.

Plant fire resistive, native vegetation.

Space trees at least 10 feet apart.

Remove dead or dying trees.

Keep trees properly pruned. Branches of mature trees should be at least 6 feet from the ground and shrubs under the trees should be no more than 18 inches high.

Trim branches so they don't extend over the roof or near the chimney.

Properly dispose of cuttings and debris.

#### **5. Plant with Crime in Mind**

Burglars enter a home in the United States every five seconds. You can avoid becoming a statistic by making sure your home doesn't look like a target of opportunity. Trim shrubs and trees back to avoid a hidden entry into your home and trim lower limbs of trees that could help a thief climb into a second story window.

And remember to visit [flash.org](http://flash.org) for more information about protecting your home and family.

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## **Animated How-To: Wildfire**

**Animated How-To's: Wildfire**

Wildfires can pose a great risk to your home and property. Reduce your risk by preparing now before wildfires strike.

Design and maintain your home landscaping with wildfire safety in mind. Plant fire-resistant shrubs and trees. Check with your local nursery or county extension service for fire-resistant varieties in your area.

### **Create a Defensible Zone**

Create a defensible, 30 foot safety zone around your home. Trim grass on a regular basis. Rake leaves and remove all dead plants, trees, and shrubs in the zone.

Cut back all tree branches that hang over the house or are lower than 6 to ten feet from the ground. Remove dead branches that extend over the roof.

Remove leaves and debris from under structures and dispose of them properly.

Stack firewood at least 50 feet away from your home.

### **Prevent Sparks**

Store flammable materials, liquids, and solvents in metal containers outside the home in a safe location at least 30 feet away from structures and wooden fences.

Clean the roof, eaves, and gutters of twigs, leaves, and other combustible debris.

Install spark arresters in all chimneys.

Cover chimneys, attic, and soffit vents, as well as the area below elevated wood decks with minimum 1/4 inch noncombustible screening or mesh.

### **Just in case...**

Keep a ladder that will reach the roof and a garden hose that is long enough to reach any area of your home and other structures on your property.

Maintain an emergency water supply within 1,000 feet of your home. This source can come from a hydrant, small pond, cistern, well or swimming pool.

When you get ready to build a new home or re-roof your present home use roofing materials with a Class-A fire-resistant rating.

Visit [www.flash.org](http://www.flash.org) or call toll-free (877) 221-SAFE for more information about protecting your home from disaster.

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## **FLASH Card: Blueprint for Safety**

### **Protect your family...**

Protect your family and your home from severe weather and natural disasters with Blueprint for Safety™ the most

comprehensive set of disaster-resistant building techniques available today. Blueprint for Safety™ offers code-plus guidelines for protecting both new and existing homes against flooding, wildfire, and high winds.

## FLOOD

- Avoid costly damage by consulting a Flood Insurance Rate Map to determine risks before you build a new home. Contact local building officials for help in determining Base Flood Elevation.
- If your existing home is in a flood zone, consider raising the structure so the lowest floor is above flood level.
- Floodproofing, levees and floodwalls are other flood prevention techniques to consider.

## WILDFIRE

- Homes in heavily wooded, rural areas are at greater risk for damage due to wildfire.
- Maintain a dependable water source.
- Build with fire-resistant building materials.
- Create a defensible space around your home by removing firewood, trimming back trees and brush, and removing dry vegetation, such as grass and leaves, within 30 feet of the residence.

## WIND

- In the event of a hurricane or tornado, protect all windows, doors, garage doors, and gable end vents with tested and approved coverings such as shutters or impact-resistant glass.
- Reinforce your home's roof, wall and foundation with hurricane straps, clips, and bolts.
- When installing a new roof, use a secondary water barrier and impact-resistant roof coverings.
- If a new roof is years away, reinforce the underside of the roof with construction adhesive that is APA approved. Look for AFG-01 rating.

Blueprint for Safety™ materials and technical advice for homeowners and homebuilders are available on CD-ROM, on the Web at [www.blueprintforsafety.org](http://www.blueprintforsafety.org), via e-mail at [flash@flash.org](mailto:flash@flash.org) or by calling our toll-free help desk at (877) 221-SAFE.

# FLASH Card: Lightning

## Lightning

Electrical surges from lightning can destroy electronic devices in your house, but this damage can be lessened or prevented by installing a system of surge protection that consists of point-of-use devices and a whole house surge device.

## Surge Protective Devices (SPD)

- These systems protect electronic and electrical appliances from all

but the most severe electrical surges or direct strikes.

- They should be installed at all items to be protected.
- A good electrical grounding system is essential.

#### **Lightning Protection Systems\***

- The systems provide a direct path for lightning to follow to the ground rather than through the house structure and its wiring.
- Consult a qualified contractor for installation.

**\*Please note:** a lightning protection system will not protect a home from electrical damage or fire from lightning entering through the telephone, cable or electrical lines to the house. Whole house surge protection devices are needed for this protection.

#### **Whole House Surge Protection**

- A whole house surge protection system can be installed on the electric meter or the electrical panel to help protect the appliances and electronic equipment in your house such as computers, TVs and VCRs.
- Contact your local electric company for installation information. If your utility company doesn't offer the service, a qualified electrician can install this device at your electrical panel.

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## **FLASH Card: Pet Safety**

### **Hurricane Preparation for Pets**

Hurricane season is June 1 through November 30. The Humane Society and FLASH are urging pet owners to ACT NOW to properly prepare pets in the likely case of a hurricane.

#### **Pet Owners have three options in the event of a hurricane:**

- Keep your pet with you at a secure, storm-prepared location (Red Cross shelters do not accept pets).
- Take your pet with you to a friend's or family member's house or to a hotel in a safe zone. This should be prearranged to avoid surprise and confusion.
- Leave your pet with a friend in a safe zone or board it at a veterinary clinic or kennel.

#### **All pet boarding facilities require up-to-date vaccinations and proper identification.**

- Update your pet's vaccinations.
- Purchase tags and have your pet implanted with a microchip (tags and microchips used together are the most effective).

way of identifying pets).

- Carry a current picture of you with your pet and its medical records with you at all times.

**Following is a list of supplies to have prepared for your pet:**

- Portable carrier (large enough for the pet to stand up and turn around in)
- Extra leash and collar
- Extra identification tag
- Pet food at least a two-week supply of dry food in water-tight container or canned food (manual can opener needed)
- Water at least a two-week supply of clean water large dogs need one gallon per day
- Up-to-date health records
- Medications flea and tick preventative and two-month supply of heartworm preventative medication
- Litter/newspapers
- Toys and treats
- Towels
- First aid supplies
- Recent photo of you with your pet

## **FLASH Card: Proyecto de Seguridad (Blueprint for Safety)**

### **Proyecto de Seguridad**

Proteja a su familia y su casa del mal tiempo y los desastres naturales con el Proyecto de Seguridad, el conjunto más completo de técnicas de construcción resistentes a desastres disponibles en Florida en la actualidad. El Proyecto de seguridad ofrece pautas "código-plus" para proteger, tanto las casa nuevas como las existentes, contra inundaciones, fuego incontrolado y vientos fuertes.

#### **Inundación**

Evite daños costosos consultando un Mapa de porcentajes de un seguro contra inundación para determinar los riesgos antes de construir su próxima casa. Contrate a un constructor local para que le ayude a determinar la Elevación básica contra inundaciones.

Si su casa actual está en una zona anegadiza, considere la posibilidad de elevar la estructura de modo que el piso inferior quede por encima del nivel de inundación.

La "impermeabilización," los diques y malecones son otras técnicas de prevención contra inundaciones a tener en cuenta.

#### **Incendio forestal**

Las casas que se encuentran en zonas boscosas y rurales corren mayor riesgo de sufrir daños debido a un incendio forestal.

Mantenga una fuente de agua fiable.

Construya con materiales ignifugos.

Cree un espacio de defensa en derredor de su casa quitando la leña y cortando los árboles y arbustos que se encuentran a una distancia de 9 m (30 pies) de la residencia o menos.

Viento

En caso de un huracán o tornado, proteja todas las ventanas, puertas y ventilaciones de los techos a dos aguas con cubiertas probadas y aprobadas, tales como contrachapado o postigos.

Refuerce las uniones del techo, las paredes y de la fundación con ganchos y grapas de fijación y pernos contra huracanes.

Al instalar un techo nuevo, use una barrera hídrica secundaria y coberturas resistentes a los impactos.

Si por el momento no piensa instalar un techo nuevo, refuerce la cara oculta del que tiene con un adhesivo de construcción o una espuma estructural en aerosol.

Para obtener más información sobre el Programa proyecto de seguridad llame a nuestra mesa de ayuda gratuita al 1-877-221-SAFE, correo electrónico [flash@flash.org](mailto:flash@flash.org) o ingrese en [www.blueprintforsafety.org](http://www.blueprintforsafety.org).

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## FLASH Card: Rayos (Lightning)

### Rayos

La sobretensión eléctrica inducida por los rayos puede destruir los artefactos electrónicos en su casa, pero este daño puede reducirse o evitarse instalando un sistema de protección contra rayos que consiste en dispositivos de uso puntual y un dispositivo contra sobretensión para toda la casa.

Dispositivos protectores contra sobretensión (SPD)

Estos sistemas protegen los aparatos electrónicos y eléctricos contra todo menos las sobretensiones severas o descargas directas.

Deben instalarse en todos los elementos a ser protegidos.

Es esencial un buen sistema de puesta a tierra.

Sistemas de protección contra rayos\*

Los sistemas le proporcionan al rayo una trayectoria directa a tierra antes que a través de la estructura de la casa y su cableado.

Consulte a un contratista calificado para su instalación.

\*Por favor, tome nota: un sistema de protección contra rayos no protegerá una casa contra daños eléctricos o incendio en el caso de rayos que entran por la línea telefónica, el cable o líneas eléctricas. Para este tipo de protección se necesitan

dispositivos de protección total contra sobretensiones para toda la casa.

Protección contra sobretensiones para toda la casa

Se puede instalar un sistema de protección contra sobretensiones para toda la casa en el medidor eléctrico o en el tablero eléctrico para ayudar a proteger los aparatos eléctricos y los equipos electrónicos en su casa, tales como las computadoras, televisores y VCR.

Contacte a su compañía de electricidad local para obtener información de instalación. Si su compañía de servicios públicos no ofrece el servicio, un electricista calificado puede instalar este dispositivo en su tablero eléctrico.

¡Proteja su hogar en un FLASH con la Federal Alliance for Safe Homes! (Alianza Federal para Hogares Seguros)

[www.flash.org](http://www.flash.org) teléfono gratuito 1-877-221-SAFE

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## Home Attachments -- Making Them Fire Resistant

### What Are Attachments?

Attachments include any structure connected to your home, such as decks, porches, fences, or sheds. These attachments can act as fuses or fuel bridges, particularly if constructed from flammable materials. Remember, if an attachment to a home is not fire-resistant, then the home as a whole is not firewise.

### All-Wood Fence

If you wish to attach an all-wood fence to your home, use masonry or metal as a protective barrier between the fence and the house.

### Building a Trellis

Use non-flammable metal when constructing a trellis and cover with high moisture, fire-resistant vegetation.

### Clear Combustible Materials

Prevent combustible materials and debris from accumulating beneath a patio deck or elevated porches; screen underneath or box in areas below the deck or porch with wire mesh no larger than 1/8 of an inch.

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## Home Construction -- Firewise Checklist

### Use Fire-Resistant Materials

Use construction materials that are fire-resistant or non-combustible whenever possible.

Consider using materials such as Class-A asphalt shingles, slate or clay tile, metal or cement, and concrete products for roof construction.

Construct a fire-resistant sub-roof for added protection.

Use fire resistant materials such as stucco or masonry for exterior walls. These products are much better than vinyl, which can soften and melt.

### **Windows**

Consider both size and materials for windows; smaller panes hold up better in their frames than larger ones; double pane glass and tempered glass are more effective than single pane glass; plastic skylights can melt.

### **Cover Vents**

Prevent sparks from entering your home through vents by covering exterior attic and underfloor vents with wire mesh no larger than 1/8 of an inch.

### **Clear Gutters and Debris**

Keep your gutters, eaves, and roof clear of leaves and other debris.

### **Clear Dead Vegetation**

Clear dead wood and dense vegetation within at least 30 feet from your house, and move firewood away from your home, fences, or decks.

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## **Lightning -- Protection Systems**

### **Install Surge Protection**

Electrical surges from lightning can destroy electronic devices in your home, but this damage can be lessened or prevented by installing a system of surge protection that consists of point-of-use devices and whole house surge devices.

### **Surge Protection Devices**

These systems protect electronic and electrical appliances from all but the most severe electrical surges or direct strikes. They should be installed at all items to be protected. A good electrical grounding system is essential.

### **Lightning Protection Systems**

These systems provide a direct path for lightning to follow to the ground rather than through the house structure and its wiring. Please note: A lightning protection system will not protect a home from electrical damage or fire from lightning entering through the telephone, cable or electrical lines to the house. Whole house surge protection devices are needed for this protection. Consult a qualified contractor for installation.

### **Whole-House Surge Protection**

A whole-house surge protection system can be installed on the electric meter or the electrical panel to help protect the appliances and electronic equipment in your house such as computers, TVs and VCRs. Contact your local electric company for installation information. If your utility company doesn't offer the service, a qualified electrician can install this device at your electrical panel.

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## **Wildfire -- Protective Measures**

### **Determine Your Wildfire Risk**

Determine your wildfire risk profile.

Generally, low risk conditions exist if there is:

Bare ground, improved pasture, or widely spaced grassy clumps or plants.

Moist forest, mostly leafy or large trees.

Few plants growing low to the ground.

Oak leaves or other broad leaves covering the ground.

Moderate risk areas include:

Thick continuous grasses, weeds, or shrubs.

Continuous thin layer of pine needles and scattered pine trees.

Scattered palmettos or shrubs up to 3 feet tall separated by patches of grass or sand.

A clear view into or across the undeveloped area.

High to extreme risk areas include:

A thick bed of pine needles and many pine trees.

Continuous palmettos, shrubs, or sawgrass more than 3 feet tall.

Vines and small to medium trees or palms beneath taller pine trees.

Impenetrable shrubs or young pines.

No clear view into the undeveloped area because of dense growth.

If risk profile is low to moderate a minimum of 30 feet of defensible space must be established around your home. If your wildfire risk is high or extreme, defensible space should be increased up to 100 feet and the use of more fire resistive building materials should be considered.

### **Wildfire Protection Tips**

Fire resistant plant species should be considered for use in the defensible space. Check with your local extension agent for a list of fire resistant plants and trees for your area.

Firewood must be stored at least 50 feet away from the house and other structures.

Noncombustible screening with a mesh size no greater than 1/4 inch must cover the fireplace chimney, the attic, eaves, and the underside of above ground decks.

Roof assembly must have a Class A fire resistive rating, wood shakes and shingles are not recommended.

Gutters and downspouts must be made of noncombustible materials.

Homes must feature a noncombustible street number at least four inches high on a contrasting background, visible from the road.

Driveways must be at least 12 feet wide with at least 15 feet of vertical clearance.

LP gas containers must be located at least 30 feet away from any structure and surrounded with 10 feet of clearance.

### **Clean Your Gutters**

Something as simple as making sure that your gutters, eaves, and roof are clear of debris can reduce your fire threat.

### **Vinyl**

Although some vinyl will not burn, during the Florida wildfires of 1998, firefighters found that some vinyl soffits melted, allowing embers into the attic space.

### **Install Smoke Detectors**

Install smoke detectors and test them twice a year. Change batteries every six months at a minimum.

### **Fire Extinguisher**

Have at least one dry chemical fire extinguisher on hand.

### **Review Home Insurance Policy**

Review your current homeowner's insurance policy. Write down the name of your insurance company, policy number and telephone number and store it in a convenient place.

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## **Fire Disaster Plan**

### **Plan Now**

The time to plan for a fire emergency is now. Take a few minutes to discuss with your family what actions you will need to take.

### **Have Contact Numbers**

Post your local police, emergency management and firefighting agency's telephone numbers in a visible place.

### **Evacuation Plan**

Decide where you will go and how you will get there. Unlike evacuating for a hurricane, with fire you may only have a moment's notice. Two escape routes out of your home and out of your neighborhood are preferable.

### **Fire Tools**

Have tools available: fire extinguisher, shovel, rake, axe, handsaw or chainsaw, and a two gallon bucket.

### **Water**

Maintain an adequate water source within 1,000 feet of your home through:

Community water/hydrant system

Drafting site on a lake

Cooperative emergency storage with neighbors

Swimming pool

### **Pets**

Have a plan for evacuating your pets.

### **Family Fire Drills**

Practice family fire drills. Make sure everyone knows at least two escape routes from your home.

## **Lightning -- Safety Actions**

### **Lightning Safety Tips**

Avoid open high ground and isolated large trees.

Avoid water (swimming pools, lakes and rivers), beaches and boats.

Seek shelter inside a building or a car, but not a convertible or golf cart.

Stay away from doors, windows, and metal objects such as pipes or faucets.

Stay off the telephone or electrical devices.

Monitor NOAA Weather Radio.

## **Lightning Victims -- How to Help**

### **How to Help**

In the event that a person is struck by lightning, medical care may be needed immediately to save the person's life. With proper treatment, including CPR if necessary, most victims survive a lightning strike.

### **Side Flash**

Most people struck by lightning are not struck directly but are affected by the current running through the ground (also known as a side flash). People who are adversely affected by a lightning flash, either directly or indirectly, need prompt medical attention.

### **Call 911**

Provide directions and information about the likely number of lightning strike victims.

### **Be Careful**

The first rule of emergency care is "make no more casualties." Rescuers must stay aware of the continuing danger that a lightning storm poses, both to the resuers as well as to the victims.

## **NOAA Weather Radio**

### **What is NOAA weather radio**

Quickly changing weather demands careful attention. Keep your family safe by staying tuned to NOAA weather radio -- it provides critical life-saving weather information when placed properly in your home.

NOAA Weather Radio (NWR) is the "Voice of the National Weather Service," a nationwide network of radio stations broadcasting continuous weather information direct from a nearby National Weather Service office.

NWR broadcasts National Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day commercial free.

### **Types of Information on NWR**

Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "all hazards" radio network, making it your single source for comprehensive weather and emergency information. NWR also broadcasts warning and post-event information for all types of hazards--both natural, (such as earthquakes and volcanic activity) and environmental, (such as chemical releases or oil spills).

### **Getting Better Reception**

Reminders: Reception is usually best if placed near a window. An external antenna may be needed if you are located more than 30 miles from the transmitter. Strobe lights, pagers, computers, and text printers can be connected for the visually and hearing impaired. Remember power outages can occur at any time, so be sure to keep a battery-powered radio handy. Go to [www.nws.noaa.gov/nwr](http://www.nws.noaa.gov/nwr) to find the nearest NWR transmitter.

## **Power Outage -- Safety Tips**

### **Safety Tips During a Power Outage**

Whether a power outage in your home is caused by grid failure or severe weather, you can take the following steps to prepare and respond.

Include power outages in your family disaster plan, identifying alternate means of transportation and routes to home, school, or work.

Keep extra cash on hand since an extended power outage may prevent you from withdrawing money from automatic teller machines or banks.

Keep a supply of non-perishable foods, medicine, baby supplies, and pet food as appropriate on hand. Also be sure to have at least one gallon of water per person per day on hand.

Avoid opening the fridge or freezer. Food should be safe as long as the outage lasts no more than 4-6 hours.

Have one or more coolers for cold food storage, in case power outage is prolonged. Perishable foods should not be stored for more than two hours above 40 degrees Fahrenheit.

Have an emergency power supply for anyone dependent on medical equipment requiring electricity.

Keep a supply of flashlights, batteries, and a battery-powered radio on hand. Do not use candles as they pose a fire hazard.

Connect only individual appliances to portable generators and never plug a generator into wall outlets.

Use gas-powered generators only in well-ventilated areas.

When driving, be careful at intersections - traffic lights may be out, creating a dangerous situation.

Turn off any electrical equipment that was in use prior to the power.

Turn off all lights but one, to alert you when power resumes.

Check on elderly neighbors, friends, or relatives who may need assistance if weather is severe during the outage.

During a power outage, resist the temptation to call 9-1-1 for information --that's what your battery-powered radio is for.

Don't plug emergency generators into electric outlets or hook them directly to your home's electrical system - as they can feed electricity back into the power lines, putting you and line workers in danger.

Keep your car fuel tank at least half-full, gas stations rely on electricity to power their pumps.

When power is restored, wait a few minutes before turning on major appliances to help eliminate further problems caused by a sharp increase in demand.